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Rail Road News.

Pennsylvania Railroad.

In pursuance of adjournment the Committee of Three Hundred met at the office of the company, in Philadelphia, on the third inst. The meeting was largely attended, and that spirit of energy and determination evinced which is always the precursor of success. Owing to the large number of circulars issued, soliciting subscriptions, and the necessarily brief time allowed to forward them to the parties addressed, comparatively few answers have been received. The amount reported to the Committee, together with that pledged by members present, reached 2309 shares, leaving only 2926 shares to be taken.

Bellefontaine and Indiana Railway.

The line of the central road from Bellefontaine to Sydney and thence on to Doramic's Creek has been put under contract, in all thirty-two miles. That portion from Marion to the line of the Columbus and Cleveland line has also been let, and it is to be pushed forward as fast as possible. The line from Greenville to the Indiana line near Winchester, it is expected will be let an early day.

The Cayuga and Susquehanna Railroad is now completed from the depot on the hill, and the passenger trains have commenced running over the new part to the steamboat landing.—The passenger trains run to and from the Express trains on the N. Y. and E. R. R. and the steamboats on Cayuga Lake.

The Railroad Journal states that at least ten thousand miles of road will be built in the in the United States within the next ten years. Besides the iron required for the new structures, a considerable amount will be needed for relaying worn out tracks and repairs. Over 100,000 tons will be purchased annually.

New Route to California.

The Minnesota Pioneer devotes a long article to the establishment of the fact that the best route to the Pacific is along the dividing ridge between the basin of the Artic Ocean on the north, and the basin of the Mississippi on the south, to the head waters of the Columbia river; thence by sea to California.

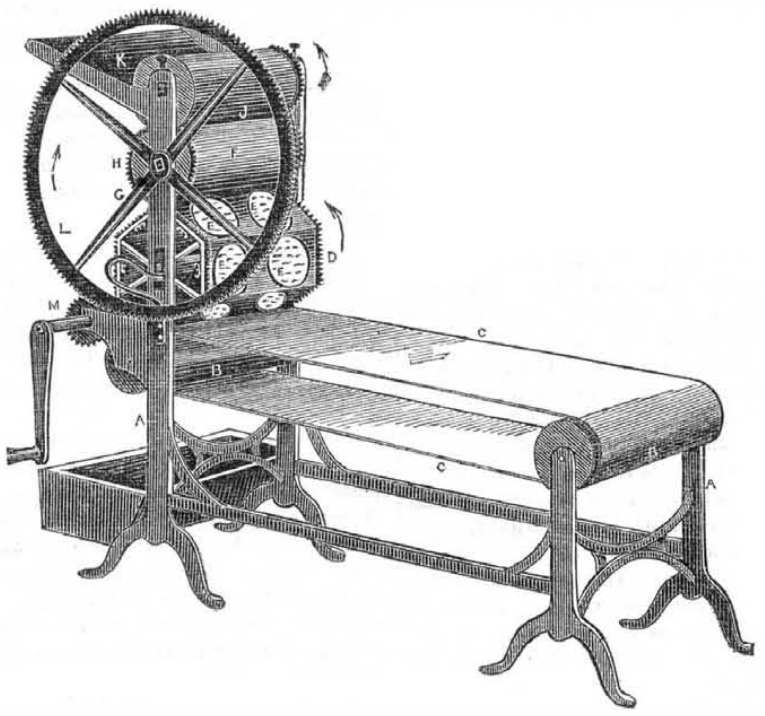
Pacific Rail Road.

On the 24th ult., Mr. Kirkwood, Surveyor and Engineer of the route of the Pacific Rail Road, with Mr. Kingsley, and two other competent assistants, commenced their labors, beginning at St. Louis. Under the energetic superintendence of Mr. Kirkwood, this route will soon be surveyed.

Cave in California.

During a recent tour in the region bordering on Stockton, California, a cave or grotto of great extent was discovered by a Mr. Lane and a Mr. McKinney. They found that it contained large quantities of stalactite, and saw evidences of gold. The Indians who accompanied these gentlemen were horror-stricken at the audacity of our friends when they entered a cave, which tradition said no man returned from alive. Mr. Lane found the skeleton of a human being some distance from the opening.

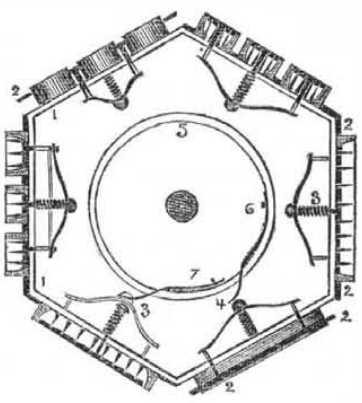
CRACKER AND BISCUIT ROLLING AND CUTTING MACHINE.



This machine is the invention of Mr. W. R. Nevins of 87 Eldridge st., this city, and patented by him a few years ago but never before presented to the public, and as a new machine the first on the principle for a large manufactory, is to be sent South in a short time, this was deemed a good opportunity to present it to the public. Its operation is on the rotary principle, but it cuts by a flat surface, to allow for what is termed the contraction of the dough.

Figure 1 is a perspective view, and figure 2 is a transverse enlarged section of the hexagon cutting roller. A is the frame, made of cast metal and bolted together; B B are the rollers of the endless apron C C, which carries the cut dough forward from the cutters towards the person who attends the oven. D is the hexagon cutting roller; E E are the cutters on it. F is the driving and one of the feed rollers; J the upper feed roller. These rollers feed in the dough, carrying it from the feed table K, to the cutters, and roll it to the proper thickness

FIG. 2.



to be cut, for the different kinds of crackers and biscuits. Set screws are placed above the journals of the top roll, for that purpose. The driving roller has cog rims, G, which mesh into like rims on the cutting roller, and a like rim on the top roll to give motion to the same. L is a large driving cog wheel, on the axle of the roller F, and M is a pinion to drive it by crank handle, or by band and pully, if driven by steam or water power. The arrows show the motion of the rollers.

Figure 3.—This shows the cutters placed on a hexagon, so that each set of cutters are placed on plane surfaces, allowing the cut dough to leave the cutter more readily than if the cutters had been set radially, because the dough is an elastic substance, and the arrangement of the cutters connected with the springs, ejects the dough and always cleans the cutters, an important consideration, especially in machines which have a rotary motion. 1 1, is a plate of sheet iron, the size of one of the faces of the hexagon; it is attached by thumb screw. The cutters are formed of steel and made of any form required, and they are fastened to the sheet iron plate. A plate of metal within the cutter box, is also riveted to the sheet iron, and it has openings in it, to allow the punches to pass freely through them. 3 3 3, are bolts with spiral springs around them. These bolts are firmly screwed, and the springs keep the followers close to the bottom of the cutters; 2 2 2, is the waste follower; it is a plate of metal outside of the cutters, with perforations for the cutters to pass through. This plate is secured to two bolts for each plane surface, which are connected to springs, as shown at 4. In the interior of the hexagon are two hollow cylinders, 5, secured on the shaft. A number of strong springs are riveted to the inner surface of these hollow cylinders, which project outward through openings at 6 and 7, which act upon the ejector when the dough is cut, to clear the cutters.

In figure 1 it will be observed that the dough is carried round on the roller F, and the cutters cut on the roller, then carry the cut dough till the angle clears the roller, when the cut dough is deposited on the apron below. To allow the hexagon rack to mesh into the teeth of the steel rim G, a strong spring is secured on the outer ends of the hexagon journal, and it is moved up and down in slots in the side of the frame. A box below receives any of the waste dough. The required speed, either fast or slow, may be given to the rollers by changing the driving pinion, a slot being made in the bearings to accommodate pinions of different sizes, to mesh into the large cog wheel. The claim on this patent, is for placing the cutters on plane surfaces on a revolving roller, and for the manner of freeing the rollers from the dough. Any communication, post paid, addressed to Mr. Nevins, will be promptly attended to.

We know of no man who has done so much at inventing in the line of such machines, who has been so poorly rewarded, or circumvented in obtaining a liberal compensation for his inventions, than Mr. Nevins. He has sown, and others have reaped.

Useful Receipts.

To Kill Rats.

In or near the places frequented by these pests, place upon a slate some dry oatmeal, lay it thin, and press it flat, so that you may easily know what has been taken away. The rats if not disturbed, will come regularly to feed upon this. Supply them thus with fresh oatmeal for two or three days, then add two or three drops of oil of aniseeds, stir the mixture well together, feed them well with this for two or three days, then for one day give them half the quantity they have usually eaten, and on the following day place the following mixture:—To four ounces of dry oatmeal, scented with six drops of oil of aniseeds, add half an ounce of carbonate of barytes pounded, mix this well with scented oatmeal, then lay the mixture on the slate as the oatmeal has been placed, and allow the rats to come and eat of it without interruption. A few hours after partaking of this meal they may be seen running about as if drunk or paralytic, retiring to their haunts to die. Rats are extremely sagacious, therefore when they have eaten only a small portion of the mixture, it should not be disturbed for some time. The oil of aniseed is disagreeable to dogs and many other animals, but, in small quantities, alluring to rats.

How to Exterminate Roaches.

Sprinkle corn meal in a plate, covering the entire surface and over that sprinkle powdered sulphur—not so much as to cover entirely the meal, but lightly. Then place shallow vessels or saucers containing water near by. In a few days the roaches will disappear. This has been tried and found effectual.

[We believe that there are no greater pests on earth to the human family than rats and roaches, and every particle of information we receive on the subject we like to present it to our readers. We cannot vouch for the entire correctness of the above, but we publish them so that any one who choses may try the experiment. We have received, at one time and another, quite a number of receipts to exterminate rats, but we do not know but what they were all worthless. To kill roaches, if arsenic is mixed with potatoes, they will eat it and be destroyed, but as arsenic is dangerous to use in any case, we should like to know some safe and effective way to rid the world of the *varment*. If the above is effective, its simplicity is of great consequence.

To Get Rid of Grain Weevils.

The Agriculturists who wish to get rid of weevils have nothing to do but, as soon he is aware of their presence, to pitch the surface of some old boards and place them in his granaries; the pitch must of course be renewed several times in the course of the the year, in order to keep the insects away. The mere fumes of the pitch is disagreeable to the weevils, and will prove fatal if long inhaled.

Cure for Cancer.

It is said that olive oil, gently boiled for a considerable time in a copper vessel newly tinned, is an effectual cure for cancer. The oil must be brought to the consistency of ointment, and then constantly rubbed on the part affected for two or three weeks or longer.

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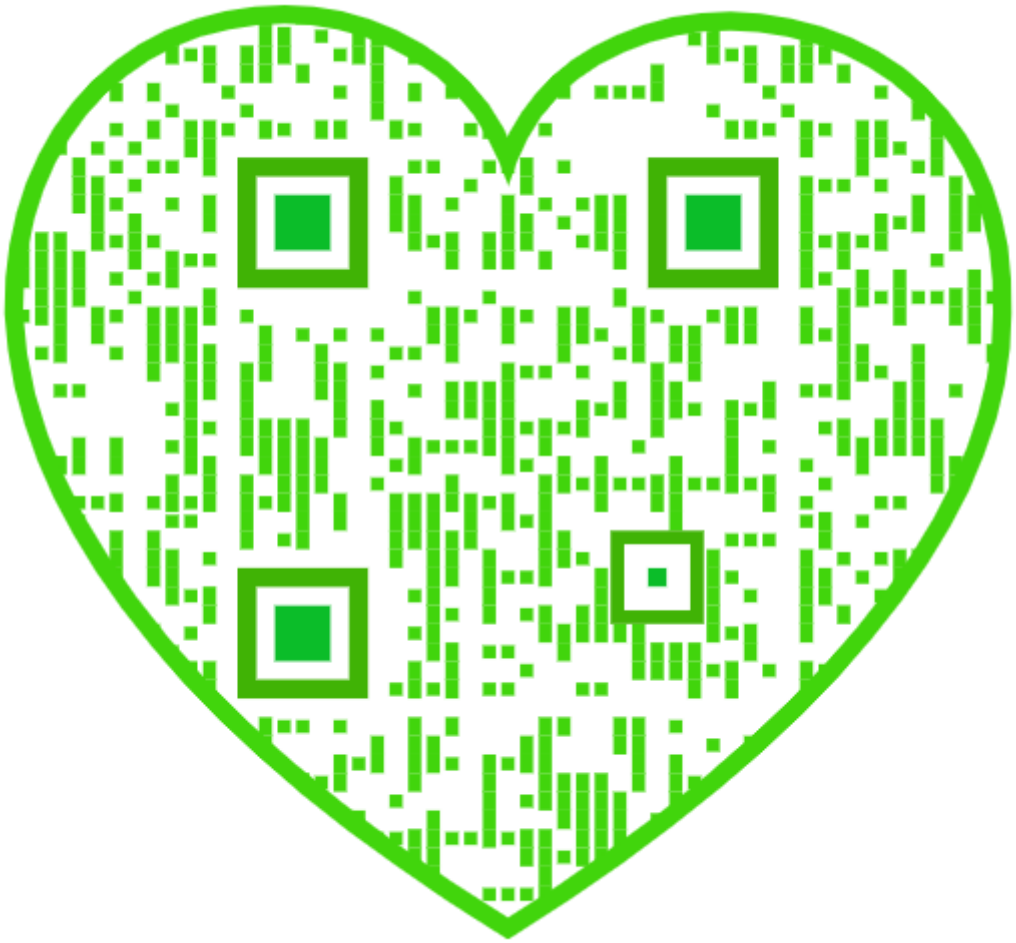

Miscellaneous.

The Census Law for 1850.

The law has been published, and it is very comprehensive. The information which it proposes to embrace includes population, profession, color, occupation, place of birth, number of marriages, deaths, the persons who can read and write, deaf, dumb, blind, insane, slaves, fugitives and manumitted, the acres of land improved and unimproved, the cash value of each farm, the value of farming implements and machinery, the live stock, the produce during the year ending June 1, 1850, and the quantity of each particular article; the products of industry and the values; names of towns, counties and cities; the aggregate valuation of real and personal estate, the amount of taxes assessed, the number and character of the public schools, the extent of public libaries; the number, class, and circulation of the periodicals and newspapers; the number of criminals; the cost of labor, the average price of board to a laboring man per week, the average wages of a female domestic per week the average payment of a carpenter per day, the average wages of a day laborer, the average wages of a farm hand, the number and value of the churches, and indeed every species of social statistics which can make those kind of tables valuable as sources of public information and reference.

Prospects of the Wool Trade for 1850.

New England contains at this time 400 woolen factories, capable of consuming, when in full operation, thirty-five million pounds of wool. To supply this quantity, she has the surplus received through the New York canals, three fourths of the importations, about one-quarter of Pennsylvania receipts, and the surplus from her own wool growers:—New York canals, 12,731,402 pounds; New England surplus, say 5,000,000; ¾ importations, 13,401,000; ¼ Pennsylvania receipts, 1,280,000. Total for New England, 31,412,902 lbs.

New York produces about twenty millions and there was received from the West, by the way of Buffalo, eight millions and a quarter more, which would leave about eight millions, after deducting the amount received through the canals for home consumption. But to this is to be added about four millions of foreign wool, making a total consumption of, at least, twelve millions. Pennsylvania and New Jersey consume about ten millions more, and the consumption in all other States will make about six millions more. It would require, then, for the consumption of the manufactories, for the coming year, if the fabric should be in brisk demand, not less than sixty-five millions of pounds.

Death of a Great Man.

Gay Lussac, the eminent chemist, died in Paris, on the 9th of May, in his 73d year.—Lussac, whose whole life has been occupied by a series of great and useful labors in chemistry and physics, gave very early promise of the reputation he was to acquire. The friend and pupil of Berthollet, he first distinguished himself by a work on the gases and vapors, which placed him at once by the side of Dalton. As a *savan* he extended the bounds of science by the most brilliant and startling discoveries. Making his researches sometimes alone, sometimes in connexion with other eminent men—Thenard and Humboldt, for instance—there is hardly a branch of physical science in which he has not labored with signal success. There is hardly a *savan* in his study, or a manufacturer in his factory, but is indebted to Gay Lussac for some invention, some method, some apparatus, some scientific suggestion, which facilitates his labors and renders his result more perfect.

Colonel Fremont.

We see it stated that the Geographical Society of London have voted a gold medal to Colonel Fremont for having made, during the past year, the most valuable discoveries in geography of any known person. It is usual for this society to give a medal every year to the person having made the most valuable discovery in geographical science.

For the Scientific American.

Whilst the redection of the rates of postage is desirable, as a national advantage, the reduction of the labor of the department, as far as practicable, is worthy of consideration. The income of most offices is trifling: the business is so small that most postmasters transact it in connection with their ordinary occupations, and in receiving the pay for letters, other business is frequently interrupted. If the reduction of the rates should be confined to letters paid by stamp, it would lessen the labors of the office, for these paid letters could be deposited without requiring the attention of the postmaster. The price of the stamps could be so lessened, or such a reduction made to the purchaser of a reasonable minimum amount thereof, to secure their general use. The labor of large offices would thereby be diminished, and the access to them would be less delayed when they are the most frequented.

A Country Post Master.

Charcoal for Cisterns.

The Horticulturist for April, publishes the following report of an experiment made by C. Robinson, Esq. of New Haven:

"My cistern holds some fifteen hogsheads, is filled from the roof of my house, standing near a street much frequented, although regularly watered during the summer season.—Whether the difficulty has arisen from the dust from the street, or from the fact that a grape vine overhangs a part of the roof, or because the cistern is closely covered, the water all the time has had a slight unpleasant smell. Last summer this difficulty became so great, that I was compelled to have the cistern emptied and thoroughly scoured. This winter the trouble has been greater than usual; so great as to drive me to the unwelcome conclusion, that my cistern must be again broken up, emptied and cleansed.

Such was the condition of things when I made the experiment above described; and I very naturally went a step farther. Taking about six quarts of clean charcoal, finely powdered, I wet it thoroughly in a pail, and then poured it through the water pipe in my cistern.

In ten days the whole difficulty was removed. Indeed the water became as pure, clear, sweet and soft as the purest which falls from the sky.

Stone Cavalry.

Four petrified horses and their riders are said to have been discovered at the bottom of Crow Wing river, one hundred and twenty-eight miles above St. Paul, Minnesota. The St. Paul Pioneer, which seems to be slightly sceptical on the subject, offers to pay fifty dollars for each sound petrified horse, mare, or gelding, and the same for each perfect petrified man or woman which may hereafter be found, and half price for ponies and children. A St. Louis Barnum, who is about to establish a museum in that city, writes to the editor of the Pioneer for particulars in relation to the stone cavalry, and offers to pay liberally for these hard customers if they can be delivered there in "good condition." A few antediluvians, embalmed by nature, would rather take the shine out of the swaddled corpses brought from the pyramids.

Death From a Pin.

A young Scotch lady, Miss Lavinia Downie, has undergone, with fatal issue, an operation to extract a pin which was lately discovered to be in her ear. When a very little girl, twenty years ago, Miss Downie put a pin in her mouth, and presently afterwards, as she believed, swallowed it. A festering in her ear lately revealed the existence of a foreign substance, and after great suffering the lost pin was extracted; it had become much bent in working its course through the tissues and bony structures. The young lady suffered long and intensely, and died on the 4th of April.

Indestructibility of Enjoyment.

Mankind are always happier for having been happy; so that if you make them happy now, you make them happy twenty years hence, by the memory of it. A childhood passed with a due mixture of rational indulgence, under fond and wise parents, diffuses over the whole of life a feeling of calm pleasure; and in extreme old age, is the very last remembrance which time can erase from the mind of man. No enjoyment, however inconsiderable, is confined to the present moment. A man is the happier for life, from having made once an agreeable tour or lived for any length of time with pleasant people, or enjoyed any considerable interval of innocent pleasure, which contributes to render old men so inattentive to the scenes before them; and carries them back to a world that is past, and to scenes never to be renewed again.

Maryland Institute.

In noticing the exhibition of this Institute, which is to be held next October, we made a mistake, by stating that it was to continue open *four days* only. It will open on Monday the 14th, next October, and close on Thursday the 30th October—18 days. This Institute is in a flourishing condition, and every thing bids fair for a first rate Fair. The Common Council of the city of Baltimore has done the genteel thing to it, by granting a lot 360 feet by 60, for a new hall, and $15,000 towards the building. Well done Baltimore.

Destitution in Glasgow, Scotland.

A distressing picture is given in a recent report of the amount of destitution in Glasgow, Scotland. One thousand and thirty-eight persons reside in that city, by any one of whom the largest amount earned in one week was six shillings, while many of them earned only sixpence, and the most of them from one to three shillings. The places in which they lived are stated to be of the worst description.

[There must surely be some mistake in the above extract, which we have seen in a number of our exchanges. Only one thousand persons with one dollar and half per week in a city whose population is 400,000, does not present any great amount of destitution we think, but the very reverse.

The Descendants of Robert Burns.

For some time, says the Daily News, there has been traveling in the interior of the remote Island of Borneo, and sojourning among its rude people of head-hunters, a young man of the name of Burns, and this young man is the grandson of Robert Burns and "bonny Jean." This adventurous youth had not only been hospitably and kindly treated by the rude Dyaks, but a prince of the Keyan nation, the most powerful of the Island, has given him one of his daughters to wife; so that the future biographers of Robert Burns will, in all likelihood be able to enumerate among his descendants those also of a Bornean prince. Mr. Burns has discovered mines of antimony and coal fields in Borneo more extensive than any in the world, out of America.

Western Giants.

The Cattaraugus County Whig, gives an interesting account of a number of skeletons recently exhumed in the town of Carrolton, in that County, near the confluence of the Limestone and Teunangwant Creeks. In digging a cellar, it became necessary to remove a large maple stump, and a number of human skeletons appeared immediately beneath, most of the bones remaining entire, others having been crushed by the weight of the stump and the use of levers, crowbars, axes, &c. The skulls were larger than those of common men, so large that those who dug them up, could place their heads within the cavities.

Parsnips for Pigs.

The Sussex (Eng.) Express says, "At our farm we have been in the habit of employing parsnips for this purpose, for some time. Upon reference to our books, we find that on the 11th of October, 1847, we put up two shoats of eleven weeks old, and fed them on skim milk and parsnips for three months, when they were killed, weighing 231 and 238 pounds. They were well fattened, firm in flesh. and the meat, of excellent flavor. The quantity of parsnips consumed by them, was 9 bushels each.

Telegraph Profits.

The monthly receipts of the Washington and New Orleans Telegraph Company are estimated to be $10,000, when in good working order, and the expenses about $5,000.

Bain's Merchants' Line, in this city, has declared a dividend of 5 per cent. for the first six months. This is doing a good business.

Steamboat Boilers.

Some of the many steamboat accidents on the Western waters, this season, are attributed to the adoption of a new planned boiler. The St. Louis Union says:

We have come to the conclusion, after mature examination, that the boilers and flues of the St. Louis are constructed upon an injudicious and dangerous plan. We are fully convinced that, in a high pressure boiler, when steam is usually carried as high as one hundred and twenty to one hundred and forty pounds to the square inch, no flues should be used over, say fifteen inches in diameter. A larger flue, it is true, may be used without accident; but it is, we believe, ever liable to it, under any unusual circumstances.

In proof of this fact, no less than three fine steamers have collapsed flues of a large kind within a recent period, which belonged to our city, viz: the steamers San Francisco, Columbus and St. Louis. Surely this must have been the cause of the accidents.

The Columbus has rejected the objectionable boilers, and the owners of the St. Louis have made arrangements to do the same. The defect is not in the builder or the material, but the plan.

Old Rice.

A gentleman who has resided for many years in India, fourteen hundred miles up the Ganges, says that the people there who are able to keep their rice, do not eat it until it is two years old, and the soft part has been eat out by the worm. Then they winnow it clean, and eat it. Rice is the common food, and the poor people are obliged to eat new rice, as rich people do here. The gentleman says that during his residence in India, there have been famines in the districts around him, in which "millions of people perished." The famines result from the entire absence of rain for six months, and scorching winds, which destroy all vegetation. The British goverment are building a canal of great capacity, from mountains in which the Ganges rises, down into the country seven hundred miles, at an expense of fifty millions of dollars, for the purpose of irrigating the land. The cost of the canal is to be paid from the revenues of India.

Liquid Gold.

The Philadelphia Bulletin states that on Tuesday last, May 28th, there was melted down and cast into ingots for rolling, in the melter and refiner's department of the mint, about seven hundred thousand dollars' worth of gold; and on the same day, of gold preparatory for assay, there was melted nearly one hundred thousand dollars more. The whole weight was about three thousand six hundred pounds, and, if rolled into a sheet as thick as a half-eagle, would yield five hundred and forty-five square feet.

The Atlantic.

This noble steamer arrived at this port on last Sunday, making the passage from Liverpool in eleven days and four hours. This is a capital passage. We find that those papers who were immoderate in their censures about her first voyage, are now as extravagant in their praise. We hope that she will maintain for a great number of years, the character she has gained on her second voyage.

Subterranean Lake at Lancaster.

The Lancaster, (Pa.) Gazette gives an account of an underground body of water, which it says lies beneath the highest point of the city, 27 feet under the surface, and 20 feet above Centre Square. It was first discovered by a workman digging a well, and is thought to be 50 feet wide and 10 feet deep.—It flows in a southwestern direction. The Gazette proposes that the water be used to supply the city.

Old Tan Bark.

If wood ashes can be cheaply obtained, the best way to convert tan into manure is to mix it in layers—say, a bushel of ashes, unleached, to ten of tan—the heap to be made up in spring, worked over in midsummer, and used the next season.

The bee follows the instinct of sight in alighting upon a flower, as it sometimes alights on artificial flowers.

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The Patent Office, and Reform of the Patent Laws.

The following article taken from the Union, is no doubt from the pen of Mr. Burke, late Commissoner:

While the bill amending the patent laws was pending on Monday before the Senate, the following amendment was offered:

Sec.—, And be it further enacted, That all rules, orders, and by-laws of the Patent Office shall be entered in a book kept for that purpose, which shall be public and open for inspection to all persons transacting business at the Patent Office; and said rules, orders, and by-laws shall be general in their application in all cases.

This amendment implies that the rules, orders, and by-laws (of which there are none) of the Patent Office are not open for the inspection of all persons, and that they are not general in their application to all persons doing business at that office. This is certainly an error. All the rules regulating the manner of doing business at the Patent Office are printed and distributed gratuitously to all persons having business with the office, and to all others applying for them. This has been the practice of the office, we believe, under every Commissioner, from the reorganization of the office to the present time. There is no secrecy or uncertainty about those regulations; and, in the main, they are now the same as when originally adopted. It is true, they are within the discretion of the Commissioner, who may, whenever the necessities of the office or justice require, alter, amend, or even suspend them.—He exercises the same discretionary power over the rules which regulate the business of his office as the heads of the other bureaus exercise over their respective officers. We have never known the rules of the Patent Office to be altered, amended, or suspended for favoritism in a single instance; and whenever they have been amended or suspended, it has been for the purpose of promoting the dispatch of business in the office, or to enable the office to do justice to persons having business with it. We know that such was the case under the administration of the late Commissioner, and we have no reason to doubt that it is also the case under the present Commissioner. And we will take the occasion to affirm, that we do not believe there is another office connected with the government which is, and has been, more impartially and systematically administered than the Patent Office.

Yet we are aware that there are, have been, and we have no doubt will forever continue to be, complaints against that office on account of the manner in which it is administered.—The late Commissioner was constantly beset with these complaints, and the office was constantly charged with partiality and corruption. But these charges mainly emanated, not from inventors, but from agents and patent pirates; and if such charges are now made, we have no doubt they in the main proceed from like sources. The late Commissioner was constantly assailed by such persons who are the pests of scientific improvement, instead of its promoters. Instead of trammelling the hands of the Commissioner, Congress should give him power to expel from the office, and disqualify from all future business intercourse with it, patent agents, when guilty of offences which disqualify them from doing business in any respectable court of justice.

We have examined the bill now pending before the Senate, and find that many of its sections merely re-enact what is now the law and usage of the Patent Office, and the residue we humbly believe would open all valuable patents to a general invasion by patent pirates. We are of those who believe that the honest inventor should be protected by the government, instead of being exposed by its legislation to the depredations of a set of men who make it a business to infringe the rights of the inventor, and who, in point of morals, are not above common thieves. It is a great mistake to call the right of property in a valuable invention a monopoly. It is not a monopoly, in any sense of the world. The inventor is as much entitled to his invention—the production of his intellect, labor, and money—as the farmer is to the bushel of wheat produced by his own labor, or the lawyer to his fee. That right of property can be taken for the public use, as all private property can be, but not without an adequate compensation. This adequate compensation the government gives the inventor by professing to secure to him the exclusive and uninterrupted use of his invention for the term of fourteen years, in consideration that, at the end of that time, it shall become the common property of the public.—Therefore, the government is, in justice, bound to be liberal to the honest and real inventor, and to give him adequate protection for the term of time stipulated for.

In the preceeding remarks, we disclaim all reflection upon the distinguished mover of the amendment which has furnished the text of our article. We have no doubt his motives are most honorable and praiseworthy, but we believe he has been wrongly informed with regard to the matters to which the amendment relates."

[We shall make some remarks upon this letter next week.—Ed.]

Table of the Board Measure of Logs.

Diameter of Log in inches.	Content for 12 ft. in length.	Content for 14 ft. in length.	Content for 16 ft. in length.
12	72	84	96
13	84	98	112
14	100	116	132
15	115	135	155
16	130	152	174
17	147	170	194
18	162	190	218
19	182	212	242
20	200	234	268
21	220	256	292
22	242	282	322
23	264	307	350
24	289	337	385
25	313	372	432
26	338	389	451
27	360	421	483
28	390	454	518
29	420	490	560
30	452	528	604
31	484	564	644
32	514	603	692
33	554	649	744
34	582	679	777
35	618	722	826
36	650	758	866
37	689	798	918
38	727	858	989
39	786	903	1021
40	807	941	1076
41	848	989	1130
42	891	1039	1188
43	924	1078	1232
44	979	1142	1305
45	1025	1195	1366
46	1073	1251	1430
47	1123	1310	1497
48	1175	1359	1565

M. J. B.

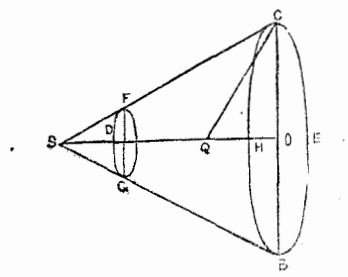
Philosophy of Mechanics.

Being an answer to a series of articles published in the Scientific American, commencing on page 67, termed "Important Discovery that may lead to improvements of great value."

No. 3.

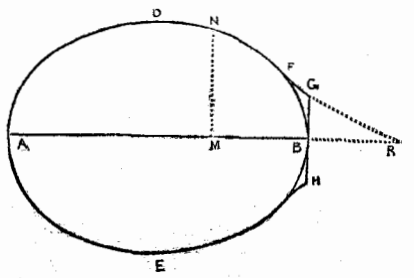
The author of the articles referred to on page 75, says," if philosophers were acquainted with the phenomena of circular motion and centrifugal force, why did they not give us a rule for shaping vessels, and then the world would have been far in advance of its present position." How the shaping of vessels has any thing to do with circular motion, is something inexplicable, but let that pass. On page 83 he gives a rule for shaping vessels whereby they can be made to cross the Atlantic, as he informs the world by his recent articles, in less than five days. By this rule he says, as plainly as can be said, "the world will soon be beyond its present position, by my important discovery." It is well known to natural philosophers, that "the solid of least resistance" has engaged the attention of not a few of the brightest lights in science, and the mind of Newton, especially. As the author of those articles does not seem to have a profound acquaintance with such authors, I will hereby insert the 24 proposition of Book 2nd of the Principia. After demonstrating the resistance of a cylinder, Newton says:

By the same method other figures may be compared together as to their resistance; and those may be found which are most apt to continue their motions in resisting mediums. As if upon the circular base C E B H, from the centre O, with the radius O C, and the altitude O D, one would construct a frustum C B G F of a cone, which should meet with less resistance than any other frustum constructed with the same base and altitude, and going forwards towards D, in the direction of its axis: bisect the altitude O D in Q, and produce O Q to S, so that Q S may be equal to Q C, and S will be the vertex of the cone whose fustrum is sought.



Whence, by the bye, since the angle C S B is always acute, it follows, that, if the solid A D B E be generated by the convolution of an elliptical or oval figure A D B E about its axis A B, and the generating figure be touched by three right lines F G, G H, H I, in the points F, B, and I, so that G H shall be perpendicular to the axis in the point of contact B, and F G, H I may be inclined to G H in the angles F G B, B H I of 135 degrees: the solid arising from the convolution of the figure A D F G H I E about the same axis A B, and that the extremity B of each go foremost. Which Proposition I conceive may be of use in the building of ships.

If the figure D N F G be such a curve, that if, from any point thereof, as N, the perpendicular N M be let fall on the axis A B, and from the given point G there be drawn the right line G R parallel to a right line touching the fig. in N, and cutting the axis produced in R, M N becomes to G R as GR^3 to $4BR \times GB^2$, the solid described by the revolution of this figure about its axis A B, moving in the before-mentioned rare medium from A towards B, will be less resisted than any other circular solid whatsoever, described of the same length and breadth.



This solid of least resistance of the great Philosopher, so mathematically demonstrated, has surely some meritorious claims, if not equal to the *modern discovery* in *importance*, at least in point of age. There can be no question, but considering the length and the greatest breath of a vessel, a curved line extending from the point or bow, to the greatest breath, presents a longer line of action, on the principle of a spiral and hence a form of less resistance than a straight line. But in the construction of ships, a great number of things have to be taken into consideration to produce the best sailing form. The nature of the element in which the vessel moves, the manner of moving it, and what is to be moved, (cargo.) The author of the articles in question, on page 83, presents his ideas on the subject by supposing a huge vessel, 640 feet long and 64 feet wide, sweeping through resistless space at the rate of 160 feet in one second, or 109·480 miles per hour. His ideas, on the page referred to, however, are worthy of attention and should not be despised. He there lays down an empirical rule for the construction of vessels of a certain length, so as to run fast, and were steamboats for no other use but racing, like race horses, it would work well enough on smooth river water, but would never answer for marine navigation, as that is an entirely different element. And so far as the construction of our river steamboats is concerned, he certainly has thrown no new light upon the subject, for they are all built with the finest tapering curve, and as narrow and long as is prudent in an economical point of view. The manner of building the hull for speed is well understood, but this is not enough for a fast steamboat, for there are other things to be taken into consideration, which cannot be so easily demonstrated, and about which there is more diversity of opinion. A good hull, without other things being equal, will not make a fast boat. The placing of the engines—the size and kind of paddle wheels are important items, and will claim our attention again.

(To be Continued.)

The Use of Oxide of Zinc is not Injurious to Health.

M. Flandin, of Paris, gave an account to the Academy of the result of a series of comparative experiments undertaken by him, with a view of ascertaining the effects produced by oxide of zinc, carbonate of lead and sulphate of lead, on the animal economy.

The presentation of the Montyon prize to M. Leclare has borne testimony to the interest taken by the Academy in the substitution of oxide of zinc for carbonate of lead in painting.

As no experiments had yet been instituted to determine the question, whether the manufacture and use of oxide of zinc was divested of all injurious consequences to the animal economy, and as some persons had stated, that the slow and repeated absorption of zinc was as injurious as that of lead, M. Flandin determined to settle the question by having recourse to the following experiments:—

Some years since, M. de Ruolz proposed to substitute sulphate of lead for carbonate of that metal in painting, &c. He considered that as the sulphate was a more insoluble and stable compound than the carbonate, that therefore it would be less readily absorbed and assimilated by the system. M. Flandin having been consulted by M. Ruolz on this point, first tried the effect of sulphate of lead on animals. In order to place the animals operated upon as much as possible in the same relative condition as the workmen employed in the manufacture and use of white lead, he made use in each case of frictions on the skin. He took a dog, and having shaved off the hair, rubbed in every day four or five grammes of an ointment composed of equal parts of sulphate of lead and lard. After the tenth day the effect of the poison became evident, and the dog died on the twenty-second day. Less than sixty grammes or two ounces of sulphate of lead had been employed in the frictions. A chemical analysis of the body indicated the presence of lead, especially in the liver. A second dog was treated in exactly the same manner, and four or five grammes of an ointment composed of equal parts of oxide of zinc and lard was rubbed in every day; ten, twenty, thirty days passed, and although the ointment was applied every twenty-four hours, the dog's health did not undergo the least alteration. The experiment was stopped when about 70 grammes of the oxide had been used. For ten days afterwards the dog was allowed to remain untouched, after which he was submitted to the action of an ointment composed of equal parts of white lead (carbonate of lead) and lard, used in the same proportions as the sulphate of lead and the oxide of zinc. At the expiration of ten days, the dog sickened and refused his food; gradually all the symptoms of poisoning appeared, and the animal died on the twenty-third, sixty grammes of carbonate of lead having been used.

These experiments incontestibly prove, that the compounds of zinc do not exert any pernicious influence on the animal economy, and that the sulphate and carbonate of lead are both injurious.

In one of the church processions, at Rome, a boy was gilded over to represent the golden age, and he died in consequence of the pores of the skin being closed.

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New Inventions.

Proposed New Description of Railway.

Mr. E. E. Merrall, C. E., of Camberwell, in a letter to the London Railway Times, suggests the construction of a railway between London and Liverpool, on a novel and gigantic scale, which puts all our present practical details of railway travelling entirely in the shade and even the broad guage is but a pigmy to his proposition. His plan is to construct a single line of railway from London to Liverpool with a twenty feet guage, without turnings, slidings, or crossings, except at the two termini, and passing place in the centre, and no curve to be of less than four miles radius. The rails are to be of suitable thickness, laid on transverse and longitudinal sleepers, on which only one carriage is to travel at one time; this carriage is to be 200 feet long, 25 feet wide, and 15 feet high, on ten wheels, two in the centre and four at each end; the lower part, between the wheels to be constructed similar to the hold of a ship, and appropriated to luggage, of which a liberal quantity is to be allowed each passenger. The upper part of the carriage to contain a lobby, at about the middle, from which a door leads into a grand saloon, fitted up with all possible elegance, similar to the state room of a ship, with a staircase leading to the roof, which is to be grand promenade, with a light, but strong, railling round it, five feet high, resembling the deck of a large steamship; on the other side of the lobby is to be a refreshment room, where refreshments of all kinds are to be supplied at moderate rates, with a small office parted of, where a ticket clerk takes money instead of at the stations. Next is a ladies'-room, fitted up with similar elegance to the saloon, and beyond this another large apartment, with benches and tables for the lower class fares. This mammoth vehicle is to be propelled by a locomotive of corresponding power, capable of carrying fuel and water for the whole journey, which is to be performed in four hours. Four carriages to travel each way per day, starting from both termini at the same time, passing each other at the turnout in the middle, and the fares to be one penny and two pence per mile for the first and second class passengers respectively. One or two guards will be stationed on the roof, to see all safe, manage signals, &c.; and the propounder thinks that the enormous saving in engines and carriages, and clerks, and porters at stations, which are to be merely platforms for passengers to step on or from, will induce capitalists to find the money for forming such a passenger line, the exisiting lines being retained for merely luggage trains.

Chromatype.

Chromatype is a new process of photography. It consists in washing good letter paper with the following solution:—Bichromate of potash, ten grains; sulphate of copper, twenty grains; distilled water one ounce. Papers prepared with this are of a pale yellow color, and may be kept for any length of time without injury, and are always ready for use. For copying botanical specimens or engravings nothing can be more beautiful. After the paper has been exposed to the influence of sunshine, with the object to be copied superposed, it is washed over in the dark with a solution of nitrate of silver of moderate strength; as soon as this is done a very vivid positive picture makes its appearance, which then only requires washing in pure water.

Oil Stone.

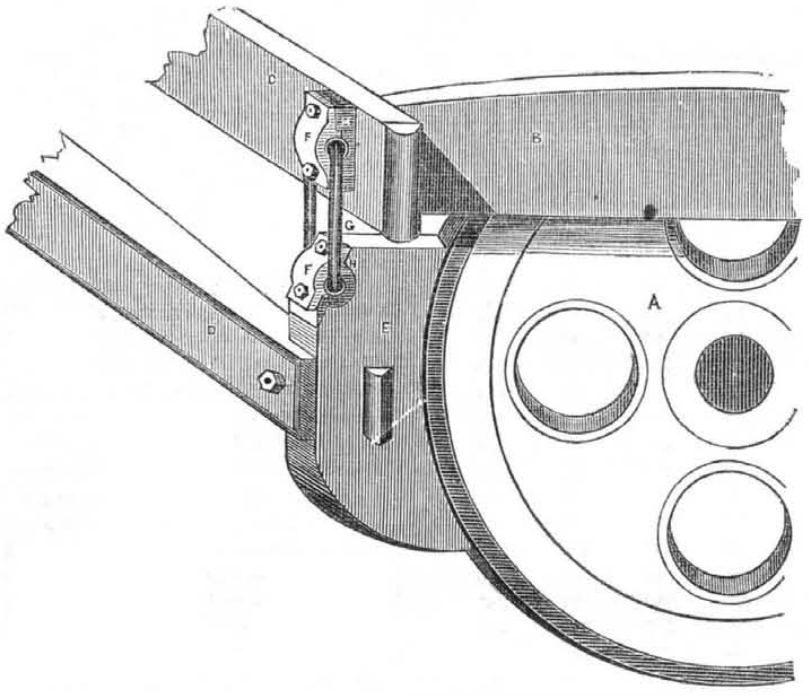
Besides the mineral deposits found on the shores of Lake Superior, there has been discovered a quarry of valuable stone on Carp river, said by many mechanics who have tested it to be quite equal, if not superior, to the famous Turkey oil stone. It is said to work well with either oil or water.

Tight Pantaloons and Tobacco.

The number on the sick list at West Point, last year, caused some investigation to be made, and the surgeon represents the causes to be the inordinate quantity of tobacoused by them, and the practice of wearing pantaloons so tight around the waist as to interfere with digestion.

IMPROVEMENT ON HANGING BRAKES FOR RAILROAD CARS AND OTHER MACHINERY.

This improvement is the invention of Messrs. John Kimball and Harvey Rice, of Concord, N. H., and patented by them a short time since. This figure represents its application to a "brake" on a railroad car, and it is not an invention of which we have to speak as one *apparently good*,—it is a tried one. It has been tested on 10 passenger cars, for the last year, on the railroad between Concord and Boston, a distance of 75 miles. The inventors occupy the respectable positions of overseers of the car and engine shops of the Concord railroad. It is also now used on nearly all the roads that connect the Concord line, and with satisfaction. A is the car wheel; B C D is the framing. The invention consists in placing a tube coating or lining of india rubber, or such like elastic substance around a link, G, passing through a box or casing, F H, which is attached to the brake, E. The rubber is enclosed in the said box, to hold it in a permanent position, except so far as its elasticity is affected by the pressure or motion of the link or pin, G, whenever the brake or other part of machinery to which this box and link is attached, is used, thereby causing the rubber to act and re-act within itself without any rubbing or friction of the link in which it is enclosed, thus avoiding wear of the parts, rattling of machinery, &c., and avoiding

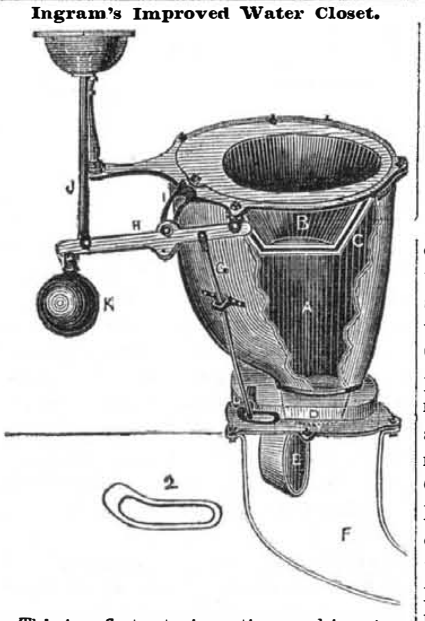


shocks. The brake, it will be observed, is also made with another box similar to the one described, both lettered alike, which encloses the other end of the link, G, thereby enabling the brake to be applied so as to adapt itself to the wheel at all times, with the same force, through the whole arc of the brake, and not more at the top than at the bottom.

The claims of this patent are, first, for enclosing the link or pin in a coating of india rubber or other elastic substance, and securing the said rubber in a box or casing, to confine it permanently in such a way as to allow the action of the brake, or other machinery, to prevent friction and noise. Second, the application of this box, so constructed to both ends of the link, forming a double joint to the brake, to cause the brake to be applied at all times evenly to the wheel, whether the truck frame be more or less depressed. The claims are not limited, therefore, to brakes, but that is only what the box with the india rubber has as yet been applied to.

More information may be obtained of the inventors by letters addressed to them, post-paid.

Ingram's Improved Water Closet.



This is a first rate invention, and is patented by the inventor, Mr. James Ingram, plumber, No. 327 Bowery, N. Y. It has a double pan, and while the top one is opened or tipped over from its seat, the lower one, by the same action, closes the opening into the sink pipe. The engraving is a view partly in section and perspective to show the whole arrangement. A is the conical chamber, divided by a conical pan, C, and a dipping metal flange B. E is the lower pan, which acts as a valve to be drawn around the conical throat, D, to stop up the passage, F, of the drain pipe, while the pan, C, is tipped over and the water let in to clean it, so as to prevent any effluvia from ever getting up from the drain pipe. This is a most excellent and important provision in such apparatus. The way this is done, is by having the pans, C and E, connected to the lever, H, the lower pan by a rod, G, and the upper pan with a travelling slotted arm, I, in which a pin of the lever works. K is a balance weight on the end of the lever, and J is a rod on the top of which is a cap or handle to draw the said rod up, when the slot arm is drawn upwards by the lever, and tips over the pan, C; the axis of the arm, I, is the hinge of the pan. At the same time that this is done the rod, G, has a double joint on it at the bottom, and works in an eccentric slot in the flange **L**, represented by fig. 2, which so guides the rod, G, as to make the pan, E, fly around the throat, D, suddenly, when the pan, C, is overturned, The chamber can then be washed out, while the passage to the drain is closed, thus preventing all unpleasant effluvia, so common to water closets. When all is thoroughly washed, the weighted lever brings the pan, C, into its place snugly, and the other pan is then thrown open as represented. For private dwellings, this is undoubtedly an unequalled apparatus. Its merits are self apparent, and we cannot but commend it in the highest terms. The China basin sits into the dipping flange B, and no seam is left for an unpleasant odor to escape into the closet.

More information may be obtained by letter, (*p. p.*) addressed to Mr. Ingram, at the above place.

New Serving Mallet for Riggers.

Mr. Thomas Batty, at No. 205 South street, this city, has invented one of the best improvements on serving mallets for riggers, that could possibly be desired, and for which he has taken measures to secure a patent. The new mallet is made of cast iron, or it may be made of wood, (but it will be best to be made of iron,) and is cast in two parts to be bolted together, and so made that a number of small rollers with grooves on their peripheries are employed, in place of the grooves on the old mallet. The effect of this is, that an enormous amount of friction is obviated, therefore the mallet will last one hundred times longer than the old kind, and the work can be done with a great deal more ease to the riggers; for instead of having the yarn slide over the grooves, as in the old mallet, the rollers assist the yarn to pass over the rope, without the use of grease and with perfect freedom from that great amount of friction which generally wears out the old kind of mallet, in about two weeks.

New Kind of Black Ink.

Boil logwood until the liquor is pretty strong, and to one quart of it put in one quarter of an ounce of bichromate of potash, and set it apart, shaking it frequently, for about three weeks. At first the appearance of the ink will be a little greenish, but after it is exposed to the sun and air for some time, it gets beautiful, is very fast, and does not injure steel pens.

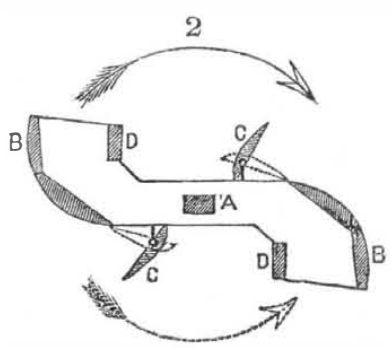
Self-Adjusting Churn.

This valuable improvement in rotary churns is the invention of Robert W. & Daniel Davis, of Rogerville, Steuben Co., N. Y., and is secured by letters patent dated April 2nd, 1850.

This churn is constructed on a self-adjusting rotary principle, and is strictly philosophical in its operation.

This figure is an end view of the dasher; A is one of the heads of the dasher, to which the floats are affixed; B B are the stationary floats; C C are moveable floats attached by wire hinges, as represented in the engraving; D D are slats which serve to strengthen the dasher, and also serve to separate and agitate the cream.

This improvement is designed to effect the purposes of churning in the most effectual manner and afterwards gathering the butter and working it to expel the buttermilk. These objects are attained in this churn by forming the revolving dasher, so that when turning in the direction of the arrow, the cream is agitated by meeting with the slats of the dasher, which are set at such angles as to force the cream toward the centre: it is then met by movable floats, which, when revolving in this direction, stand open and cause the cream to move outwards, which various and contrary motions so agitate it, that the butter is soon produced. In order to gather and work the butter, the dasher is turned in the direction of



the dotted arrows, and the movable floats closing, the outside of the slats of the dasher form a uniform curve eccentric to the axis and moving with the convex side foremost. By a few revolutions, the butter is thrown from the centre to the side of the churn box, and there gathered into a roll. The milk may then be drawn off, and by continuing the motion of the dasher the butter is pressed against the bottom and side of the churn, and worked entirely free from milk. The dasher may be easily taken from the churn, in order to remove the butter; and then replacing it, a quantity of water may be poured in, and a few revolutions will complete the washing of the churn. Further information in regard to rights, &c., may be obtained by addressing (*p. p.*) the patentees at the above named place.

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Scientific American

NEW YORK, JUNE 15, 1850.

Light and Its Effects--Gothic Churches.

How sublime is the opening chapter of the Book of Books, "God said let there be light, and the light was." Before this command went forth "the earth was without form and void," but no sooner had the gladsome holy light dawned upon the dreary gloom, than order began to assume her sway and the earth to arise in beauty. What a world of gloom this earth would be without the glorious light. No wonder the region of condemned spirits is called "a place of blackness and darkness." Without light we could have no idea of beauty. The brilliant diamond is the prince of gems. The idolater who bows to the sun exhibits next to him who worships the creator of the sun, the highest intellectual powers. Light is the nurse of the organic world. Without light the flower would not bloom, nor the meadow put on her mantle of green. And in animated nature, those animals which live in caves and in the dark places of the earth, are remarkable in their deformity. And those dark damp cellars, so numerous in Hamburg, in Europe, and New York in America, wherein dwell such a number of the human species, what are they but vaults of mortality and degradation.

Beauty, health, and pleasure cannot be separated from light. In art, the sublime and the beautiful pay homage to this truth. Well does the skilful painter know how to produce effect by throwing a mass of light upon the foreground of his picture. No wonder the "Transfiguration" is the master-piece of Raffael.

With our high civilization, it is justly to be expected that every attention would be paid to this subject, so far as it related to health, and pleasure. With respect to health, surely no one needs to be much more enlightened; but in respect to pleasure, let us indulge in a few reflections as connected with the art of church decoration—a subject of no minor importance.

In art, it is genius which unites proportion, light and shade in wedlock, ; without genius to do this, the architect will produce a composition based upon the anti-chromatic scale. This appears conspicuous in the interior decorations of almost all of our gothic churches. In some things we are a strange people, and in nothing more than a rivalry of fashion; Gothic architecture is fashionable and we rush into this fashion, be it appropriate or not, and like rival belles, one church endeavors to excel the other, if not in simple grandeur, at least in gaud and glitter. As beauty is arbitrary in her laws, nothing can be added or taken from them, without injury to the whole code, destroying their design and effect. Nothing but a pure taste should be consulted in interior decoration, in order that the whole parts may harmonize. That this rule has been extensively violated, we have but to enter all our most elaborately decorated wealthy gothic structures, to be convinced, and convinced painfully. The harmony of form, in some of them, may be seen, but the harmony of colors —light and shade, never. As our architecture is a borrowed art, it would be a happy thing had the pure and the chaste alone been selected. If to carry out the design of such a style of architecture, it is necessary to make the interior of such churches like the shades of Piuto, then the sooner they are devoted to the moles and bats, so much the better, for certainly they are not suitable for the worshippers of Him who is a "bright and a shining light,"—such places are not in harmony with the cheerful tone of worship suitable for those who expect to dwell in "the full effulgence of uncreated light." Some of these churches are so dark, that a stranger would require a clue to guide him down their sounding aisles. On entering one of them, it may be said, "darkness covers this place and [in respect to true taste] thick darkness the people" That many churches are rich in decoration, no one will deny, but they possess neither harmony nor chastity. If gaudy coloring, and a profusion of abominably colored glass, are evidences of correct interior decoration, then the majority of them may be considered the finest specimens of art, but beauty must certainly be left out of the question. There is no branch of interior decoration which requires a finer taste and a greater amount of skill than the grouping of colors in stained windows. In the majority of the churches to which we refer, yellow appears to be a favorite color. Whether it is chosen for richness, as like unto gold, or for sweetness, as being similar to a thin stratum of molasses, it is not easy to determine, perhaps the latter consideration is nearest the mark. To those who have viewed some of the finest specimens of Gothic Cathedrals there cannot be the possibility of a doubt upon the question of admitting more pure light into all our gothic churches. The good effect of this would at once be appreciated by the most unsophisticated mind. The side windows should only have tastefully colored borders, and the middle all white, except under the crowns of the arches, which should be tastefully executed in colored glass harmoniously blended, so that the "Watchers on the Walls" may have "their brows with roses and with myrtle bound."

The subject of light as connected with all that concerns man, is worthy of more attention from every individual than what it receives. If there is an organ of the human frame on which the Creator has exhibited more design and expended more labor than another, it is the orb of vision, and what is it but the window of the soul through which stream fountains of light, reflected from countless forms and hues, imparting pleasure to the mind and health to the frame.

Perspiration.

Perspiration is an excrementitious exhalation from the body to free the blood from impurity. About five pounds of perspired matter is said to pass through the skin of a full-grown man, every twenty-four hours. There are two kinds of perspiration, sensible and insensible. The sensible constitutes visible sweating; the insensible passes off in the form of vapor, and of it we are not so conscious. When we see persons with large globules of sweat on their faces, we may be sure these have all passed through the minute pores of the body and collected on the surface—perspiration has been going on quicker than exhalation. It is dangerous for persons in such a state to expose their bodies suddenly to a cold damp atmosphere, as the pores suddenly close and perspiration is obstructed. In a cold atmosphere, when perspiration is checked, the vital heat is retained, and when perspiration is profuse, the heat of the body is discharged; hence the various quantities man perspires in warm and cold countries equalize the animal heat, and he is thus enabled to withstand the exigencies of different climates. The skin sympathizes with the lungs and other internal organs, and renders them healthy or diseased. The perspired matter is principally composed of water and carbon. It also holds in solution several salts and animal matter. The oxygen of the atmosphere combining with the carbon, forms the carbonic acid thrown off by perspiration. The glands of the skin also exude a kind of an oily substance, which gives pliancy and softness to the skin. This oily secretion is very copious in the negro, making his skin remarkable for softness, and preventing the cuticle from cracking by the powerful influence of the sun. This is the reason why the tears of the negro appears like crystals rolling over a soft sable piece of fine fur. The skin so intimately sympathizes with the lungs, bowels, &c., that when perspiration is obstructed, these organs soon become deranged and disease follows.

In warm climates copious and free perspiration is necessary for health. In some of the southern States and in tropical countries, when perspiration stops no time should be lost in making a will. Those who perspire with difficulty are not constitutionally adapted to live in a tropical climate; those who perspire freely are best adapted to live in warm latitudes. In cold climates, he who perspires the least is the most comfortable—in warm climates, the reverse. The skin of some people is more sensitive than that of others, and in some it sympathises so intimately with the lungs, &c., that when perspiration is obstructed only for a short time by the application of cold to the skin, they are thrown into spasms. In people of a sanguine temperament the membrane of the lungs becomes inflamed by a sudden stoppage of perspiration. In the lymphathic, the glands of the lungs are irritated, and in bilious people the stomach and bowels. This is the reason why different people are frequently attacked by diseases of different organs from obstructed perspiration. As the skin exercises such an important influence on the physical condition of every person, it is necessary to preserve it from injury, in order to preserve health. The skin should be kept perfectly clean, by being frequentiy washed and rubbed to remove all external obstruction to perspiration. Children should be wholly washed every day, especially before being put to bed, and then well rubbed with a dry cloth; adults also should be washed as often. It is the universal custom to wash in the morning, and not before going to bed—the latter period is decidedly the best, although the former should not be neglected. The reason of this is, that during the day the exercise consumes part of our system, which our food is designed to supply, hence the continually wearing away and re-production of the different parts of our bodies. Evening, or during sleep, is the period designed by the law of our creation for the depositing of the new solid particles to supply the place of the worn out particles. Let all the wasted matter, therefore, be washed away outside, to allow the new to form freely, aye, and to form in a more beautiful manner, for like the deposition of crystals, the particles of matter of the skin assume a smooth or coarse appearance, by the form of the extraneous particles on the outside. This is the reason why those who wash their teeth, face and hands before going to bed, have generally good teeth and fresh smooth skins. Cold sea water bathing in summer, and hot sea water bathing in winter, is good for the preservation of a healthy skin. If an internal organ be diseased, the cold bath should not be used. In such a case the hot bath relieves internal congestion by expanding the cutaneous vessels for the reception of a proper qnantity of the circulating blood. The cold bath, in such a case, forces the blood from the surface upon the internal overloaded vessels, and in some cases this has caused death, the result of the malpractice of ignorant men. On leaving a heated room, persons should never expose themselves to the cold damp night air. Persons who are sweating profusely should avoid exposing themselves to a cold damp current of air as they would a cup of poison. There is, perhaps, less attention paid to this important subject than any other; this is the reason why there is so much consumption on our sea board at the east, and on the borders of our interior lakes. The condition of the skin for the promotion and maintainance of health, is something which should engage the attention of, not almost every person, but every person, for it concerns every human being on the face of the broad earth.

New American Coins.

Some new coins have been struck at the mint, Philadelphia, to illustrate the Bill presented by Senator Dickinson, which is now in the Committee of Finance and they are alloys for one and three cent pieces. The cent piece is designed as a substitute for the present copper coin, and contains the proportion of silver —one tenth—expressed in its legend. The effect of this infusion of precious metal, small as it is, besides lightening the color perceptibly, is to reduce greatly the bulk of the coin of that denomination, and to make it much more convenient and portable. Its weight is twenty-five grains, while that of the present cent is one hundred and sixty-eight. It has a large round hole in the centre, which extends the diameter of the piece to a proper measurement, being the same as that of the dime which is as small as could be desired for such a coin; it affords a distinctive mark, by which the piece may be recognised and safely paid out even by the touch; it affords a facility to retailers to put the pieces up in parcels, say of hundred or thousand, by stringing them, or putting them on a wire.

The three-cent pieces is an alloy of three-fourths silver and one-fourth copper, its weight twelve and three-eight grains; its diameter just midway between the gold dollars and the half-dime. The bill provides that its devices shall be "conspiciously different from those of other silver coins;" and consequently we have a radiated liberty cap on one side, and a wreath enclosing the Roman numerals III on the reverse. It is also distinguished from the half-dime by a smooth border. It has the white appearance of pure silver. This coin is proposed as convenient adaption to the prices of many things, and to making change; but there is also a special object contemplated in relation to it. The country is weary of the worn-out Spanish money.

We cannot but hope that the abominable Spanish currency will all be thrown out of use in the course of a year or so. We hope the Bill will pass into a law as soon as possible.—There is no coin so covenient as the decimal kind, and none so barbarous as the 6¼ and 12½ Spanish pieces.

Propeller Improvements.

In our list of Patents for the week ending the 25th ult., there is the claim for one granted to Mr. P. S. Devlan, of Reading, Pa., for a new combination, and application of a hitherto lost power, to assist the propelling power. Its main feature consists, as explained to us, in a very simple arrangement of tubes running from stem to stern on each side of the vessel into which the water rushes, as it presses against the bows, and on emerging from the stern, keeps in brisk motion submerged water-wheels of large size, which are connected by cog-wheel gearing to the propellers. The invention certainly looks like a practicable one, and seems to be founded upon correct philosophical principles. We understand that it has been pronounced upon favorably by distinguished naval architects in this country and England. Mr. Devlan calculates that his improvement, properly perfected, will reduce the time of a voyage across the Atlantic nearly one half, and save also one-half the fuel now consumed in the steamers. We must wait for time to show us whether these high-wrought expectations will be realized.

We have known Mr. Devlan for some years. He has taken out a number of patents, and is now on the road to fortune. He has recently realized a handsome competency from the sale, in this country and in England, of his patent-right for the manufacture of the "Lubricating Oil," recently invented by him; and is now erecting a new building in Reading, for making the oil upon an extensive scale, to supply orders from the Reading Railroad and other Companies, which are coming in upon him to an extent sufficient to keep him busily employed for some time to come.

Splendid Present.

We saw last week a splendid diamond ring just sent over as a present by the Emperor of Russia to John W. Griffith, Esq., of this city, marine and naval architect, and author of the excellent work now publishing on that subject. The present was a mark of esteem for the skill and genius displayed by Mr. Griffith in a beautiful model of a ship forwarded by him to St. Petersburgh. The ring had a number of huge diamonds, forming a St. George's Cross, with a splendid emerald in the middle. It is a ring of great value, and shows how the nautical genius of our countrymen is appreciated by the emperor of all the Russias.

Patent Case--India Rubber Pontoon Boat.

On Monday last week a case was decided before Judge Nelson, U. S. Court, this city, for an alledged infringement of patent for india rubber pontoon boats, Horace H. Day, plaintiff, Wm. Ward, defendant. The claim of the patent was for india rubber air cylinders attached to the boat and its flexible bottom, and it seems the defendant had exhibited his boat at the last Fair of the American Institute as the patent, it is said, of Goodyear. The jury found a verdict of $469 for the plaintiff. Geo. Gifford, Esq., was counsel for plaintiff. There was a move made after the verdict in relation to damages by defendant, but it was too late.

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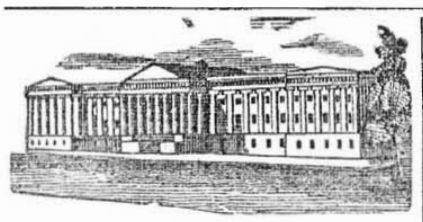

☞ Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending June 4, 1850.

To J. Bohrer, of Philadelphia, Pa., for improvement in suspending Venetian Blinds.

I claim the combination of three pulleys with cords, for the independent movement of the supporting slat, in the manner and for the purpose described.

To H. Bradford & E. Morris, of New York, N. Y., for improvement in ventilating railroad cars.

We claim the method of ventilating the cars of a railroad train and keeping out dust, smoke and sparks, by combining therewith a tube made in sections, and united by flexible joints at the junctions of the cars, which tube receives a current or currents of air forward of the chimney of the locomotive and discharges it into the cars, through apertures, all substantially as described.

To R. Brown, of New London, Conn., for improved Gun-harpoon.

I claim attaching the line to both the shank and the head of the harpoon in such manner that the extremity of the line is loaded with the harpoon into the gun, and lays in recesses made in the shank, and when the gun is fired the line will trail from the butt of the shank, and will not tend to depress the head during its flight.

To Gardner Chilson, of Boston, Mass., for improvement in Fire-place Grates.

I claim, first, the combination with the open fire place or grate, having the side draughts as described, of the air-heating chambers, consisting of an air chamber surrounding the fire and a projecting chamber above, surrounded by heat, substantially as set forth.

Second, I claim dividing the draught of an open fire, and causing the products of combustion, to be drawn off at each end of the fire, as herein described.

I also claim the sliding collar, at the exit pipe, in the manner and for the purposes specified.

To C. F. Fisher, of New Orleans, La., for improved method of making shafts, &c., of sheetiron.

I claim the constructing of hollow plate iron shafts of short cylinders combined and connected together in the manner and for the purpose above described.

To C. W. Hawkes, of Boston, Mass., for improvement in Printing Presses.

I claim, first, the application of the toggle lever working on the stationary cam, to raise the platen in the manner and for the purpose herein described.

Second, I claim the combination of the toggle lever and toggle W and V, with the stationary cam, substantially in the manner and for the purpose herein set forth.

Third, I claim the combination of the toggle lever and toggle W and V, with the swing platen as herein set forth.

Fourth, I claim the combination of the spiral springs and the trip, when used in combination with the swing platen, substantially in the manner and for the purpose herein described.

To J. W. Hope, of New York, N. Y., for improvement in Brick presses.

I claim the roll for holding the mould box, the gate for regulating the discharge of clay, and the piston for compressing the clay into the moulds, by means of a wheel furnished with series of teeth, secured to it, and acting through bundles, shafts, cranks and connecting rods, connected with the roll, the gate and the piston, respectively, substantially as herein set forth.

To J. D. Hope, of Philadelphia, Pa., for improvement in gang-plows.

I claim the spur-wheel, so constructed and arranged within the periphery of the driving wheel, that it may be made at pleasure to pass its rowels through the holes or notches in the tire into the surface of the ground when under compression and thereby grapple and gain adhesion to the ground, substantially in the manner herein set forth.

Second, I also claim the combination of parallel bars to regulate the breadth of each separate furrow, with the adjusting curve for determining the horizontal direction of the draught, so as to adapt the amount of work done by a single traverse of the engine, to the adhesive power of the wheels when applied to the particular kind of land under cultivation, substantially as herein set forth.

Third, I also claim preventing the choking of the plows by means of the recurved point of the mould-board, acting to turn aside and guide backwards the choking material, as herein set forth.

Fourth, I also claim the manner of connecting the harrow to the locomotive so that the conductor may at pleasure, by turning a crank, reverse its advancing side for the purpose of freeing the harrow teeth from choking materials in the manner substantially as herein set forth.

To C. B. Hutchinsen, of Waterloo, N. Y., for improvement in Beard and Log Rules.

I claim the combination with the inner revolving plate of the rotary tape measure with the several tables thereon, substantially as described.

To O. A. Kelly, of Woonsocket, R. I., for improvement in shuttle-motion of looms.

I claim the "bat-wing" by an adjustable connection to one extremity of a lever whose outer extremity is connected by a short strap with the picker-stick, the lever turning on a single adjustable vertical pivot and being interposed between the wiper operating as described and the picker-stick, motion from the wiper being transmitted through this lever strap and picker-stick to the driver, so as to cause it to throw the shuttle with the proper degree of suddenness and velocity when the loom is working at a high speed; this arrangement admitting of the easy and quick graduation of the suddenness and velocity with which the shuttle is thrown as herein set forth.

To S. S. May, of Sterling, Mass., for improvement in Nursery Chairs.

I claim the improvement of the movable back piece and its sustaining fixtures, in their application to the back and seat, substantially as specified, and for the purpose of using the chair either as a cradle or as a lolling chair, as specified.

I am aware that the seat of a lounge has been made so as to be capable of being lengthened or shortened by means of a slide applied to it, I therefore lay no claim to the invention of such, but I claim the above described improvement in the arm chair, the said improvement consisting in so combining one of the arms with the seat, by means of a slide adapted to such seat, that both the arm and slide may be moved in a direction away from the other or stationary arm, so as not only to lengthen the seat so as to enable it to support a mattress or bed disposed on it, but to render the arm a foot guard, for an infant or child placed on the said mattress or bed.

To E. S Scripture, of Greenpoint, N. Y., for improvement in flying-horses.

I claim the combination and arrangement of the undulated cams with the levers, and these with the flexible connections to the front part of the horses, for the purpose of and by which I produce the rising and falling motion which I term the galloping motion, as herein before described.

To S. B. Smith, of New York, N. Y., for improvement in electro-magnetic machines for shocks.

I claim separating the shock derived from the initial secondary current of the double coil Magneto-Electric Machine for that of the terminal secondary, by causing the latter to pass through a closed circuit, substantially in the manner and for the purposes set forth.

I also claim the manner of adapting the same machine to transmit both the initial and terminal secondary currents, at pleasure, by bearing off the spring by the arm, substantially as described.

DESIGNS.

To W. Bryant, of Boston, Mass., for design for umbrella stands.

To J. T. Davy, of Troy, N. Y., for design for coal stoves.

John Bull Turning Yankee.

"Homage to the mercantile genius of Great Britain!" thus exclaims a French writer in a recently published article on the export provision trade from the channel ports of France. "Cargoes of apples were ready to be shipped for London, when orders came to pack them all in chests of uniform dimensions. So, with seven boards, a stroke of the saw, a few nails, and sundry hammer-blows, chest after chest was made; and the stowage on board became as rapid as regular. In all this there is nothing that strikes you as beyond the comprehension of continental apple merchants. But John Bull has ordered his fruit-boxes of such dimensions as are required for a corpse of average statue. No sooner are they emptied, than he hands them over to the undertaker; the latter shapes them, makes the old nails serve again; and three hundred per cent. is gained in the matter of cheap funerals. Provisions from all parts of the coast are now forwarded under this ingenious envelope, and each season of the year bears to the consumers of London, its tribute of eatables and of dead-boxes."

One would almost fancy this a compliment paid to some of Sam Slick's clever compatriots, rather than to the plodding and unimaginative race who respire under the shadow of the Brtish lion. But it is true, nevertheless, as I have seen with my own eyes; and as the relaxed tariff brings us thousands of rabbits and heaps of cherries from Ostend, tons of butter and cheese from Rotterdam, millions of eggs and bushels of apples from Dunkirk, so there is no lack of coffin-wood to be put underground, and dug up again a few months afterwards by enterprising sextons for firewood.

[The above we copy from an exchange and must say that, both the Yankee and John Bull characters are misunderstood. If there is any mortal on earth, who supposes the English unimaginative, it shows he has never been beyond the tie of his mother's apron string, and if there is any person who supposes that the real Yankee would lie down in anything else than a hard-wood coffin of good manufacture, why he don't know the race, that is all.

The Solvent Properties of Caloric, Similar to Acid Gases.

The acid gases are those acrid vapors which, when united with water, form acids. As water approaches towards the point of saturation by the acid gases, it becomes a more powerful solvent, and as it combines with a greater quantity of caloric, it possesses the same qualities. Some acids have a great attraction for water. New concentrated vitriol, if exposed to the air, will imbibe a great deal of moisture, and so will tartaric acid. Nitric acid is water combined with a gas obtained from the distilation of nitre. It is not, as some have supposed, an affinity of some gases for oxygen, which forms the basis of acids, for muriatic acid, is composed of chlorine united with hydrogen. Hydrochloric acid gas has such a tendency to combine with water, that whilst transferring it from the mercurial trough to the water trough, it rushes towards the water even with such violence, which, in a short time is found to have taken it up to an extent of not less than 480 or 500 times its own bulk.

Caloric has also a great affinity to combine with water, although not generally known. Water, at the common temperature of the atmosphere, not only contains caloric, but even ice itself is known to possess it also in prodigious quantities, or so much so, that it is not only impossible to obtain ice that is altogether freed from it, but the probability is, that if this feat could be accomplished, we should obtain a substance quite as dissimilar from that material, as ice is from water, or water is from steam.

The solvent properties of the acid gases, and those also of caloric, the solvent properties of water, it has been observed, become more energetic in proportion as such water is the more nearly saturated either with the one or the other.

The property of acid to dissolve metals is well known, and this property increases when they are heated, which is analagous to the combination of one acid with another; thus a leaf of gold may be placed in a vessel, containing either aqua fortis or spirits of salt, and although the acids may be even highly concentrated, the gold if pure will continue to be unaffected, but no sooner are the two acids mixed together, forming what is called aqua regia, than the gold will disapear, because the combination of the acids retain more specific caloric than either of the acids did separately, or much in the same manner as hot water retains its caloric with more difficulty than cold, for it is no doubt true that water, even at the common temperature of the atmosphere, contains a sufficient quantity of caloric to produce similar effects, and perhaps not inferior even to those produced by the acids themselves, provided it had the like disposition to part with it. What, for instance, is the cause not merely of the fluidity, but of the solvent properties of spirit, of oil, or of mercury? what but their inherent caloric, and because the tendency of these fluids to part with such caloric is either more or less increased according to circumstances; thus the affinity between water and caloric, however great it has been shown to be, is nevertheless feeble compared to that existing betweeen caloric and ice; consequently, when a substance is thrown into water, the affinity is more easily broken than when it is thrown upon ice, or the water; in other words, it will part with its caloric more readily, which accounts, for the easy solution of such substances, as in the case of sugar, or of salt, &c., but which only goes on, nevertheless, to a certain limited extent, when the water being incapable of taking up any more, is said to be saturated with that substance, but only increase the heat of the water, and it will be found to take up more immediately, plainly showing that its solvent property is owing to the caloric with which it is charged.

If mercury then is known to dissolve at the common temperature of the atmosphere several of the metals, and if the exertion of this property is attributed to the caloric that it contains, why should we go a round-about way to account for the solving properties of the acids, when it probably arises, in every instance, from the same cause, and when the solvent properties of caloric will, moreover, account for all.

That the metals are capable of being dissolved or liquified by the action of unassisted caloric, or by simple exposure in the furnace, is well known, the amount of heat required for producing the effect upon any given substance, depending upon some inherent property for absorbing and retaining for a time such heat, with which we are at present unacquainted; but the solvent property is found to depend, nevertheless, upon the amount of heat so retained, thus copper will disappear in molten silver, and even platina, if first reduced to the state of spongy platina, will mix or amalgamate kindly enough with molten gold, &c.

Water however, even at the common temperature of the atmosphere, is, as well as mercury, not only an active solvent, since not only will it dissolve salt, sugar, gums, and many other substances, but if more caloric is applied, and more especially when under pressure, it will take up even bones and other dense bodies, as in a common Papin's digestor; and was the heat to be applied still further, and under a pressure vastly augmented, it seems scarcely possible, indeed, to set any limits to these dissolving properties of water, neither has the geologist any occasion for the supposition of any other menstrum than the action of caloric combined with water, and acting under a great superincumbent pressure, for the disolution of the hardest rocks, or even of the metals, as well as of their subsequent crystallization upon cooling into basalt, &c. &c., so that the Vulcanists and Neptunists may indeed shake hands.

Steam under pressure, (caloric and water) is now employed to dissolve bones and the very rocks, one kind from another, in the manufacture of potash.

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TO CORRESPONDENTS.

"G. W. W., of N. Y."—Your improvement about the lock we believe to be both new, good and patentable, but it is more difficult to give advice confidently about locks than any other mechanical contrivances. If you applied for a patent the cost would be no less than $50, as the business would be troublesome.

"E. P. B., of Ohio."—Directions for putting up the lathe are forwarded with it, which we think sufficiently explicit to enable any mechanic to put one in operation. The price of the Patent Laws is one shilling.

"A. B., of N. Y."—We presume your account is correct—your name has been entered to No. 5, Vol. 6.

"G. B., Jr., of Texas."—Your communication of the 12th ult., has been carefully considered in reference to the variations proposed in the manufacture of the meat biscuit: it would make no difference whether you *dried* or *baked* the combined properties of flesh and vegetable meal or flour—the principle is the same, and would be so considered in point of law. According to a strict construction of the Letters Patent, the extract can, if you prefer, be mixed with kiln-dried flour or meal, or pulverized biscuit made of wheat flour. The patent covers all these points so far as we are able to comprehend its meaning, and so long as the plan specifically laid down is the best, the deviation from, or substitution of any other matter, such as bake for dry, or vegetable flour or meal for pulverized biscuit, would be a glaring infringement of your just claims, and could not be regarded by any sane man in any other light.

"Faust, of N. Y."—We are pleased with your ideas of the press, but do not understand the principle upon which it operates, as the drawings are very imperfect. You had better bring the model referred to, into the office and explain it to us more fully.

"S. C., of Mobile."—You can commence teaching your new system without any danger to the success of the application.

"J. T., of Ala."—Your favor of the 1st is at hand. We have credited you and Phillips each with a year's subscription. We admire your perseverance and the interest you take in desseminating useful knowledge; wish there were more persons like you.

"G. W. H., of ——."—The decision of infringement cannot be different from either the claim or specification—it is upon what is claimed and that is in the specification.

"J. C., of ——."—We know of no lamp arranged as you describe, and believe it to be patentable.

"V. P. K., of N. Y."—It is not possible to give you advice about the steam power you want. The amount just depends on the work to be done. You will need a great deal of machinery, and it is somewhat expensive. We would advise you, before doing anything that way, to visit Com. Stockton's mines in Virginia, where you can see the whole process, machinery, &c. This will give you the most satisfaction and save you some money.

"J. W. A., of Del."—We believe your form of buckets is covered in Parker's second patent, which claims the tapering of the thickness of the bucket to the point of discharge. The scroll is a good one, but we would not advise you to apply for a patent—we do not believe one would be granted.

"J. W. T., of Phil."—We have not seen any plan proposed, like yours, for the same purpose. We believe it to be patentable, and it will be of great benefit to the carpet manufacturers, &c.

"J. H., of Va."—We have endeavored to get Capt. Scott's book on aerial navigation, but cannot find a copy of it, or we would comply with your suggestion.

"J. S., of ——."—The Bridle-bit is new so far as we are aware. It is a combination of levers with the reins. It is patentable, but not so preferable as the pulley and cord arrangement. We will attend to your other wants in the course of a few days.

"N. T., of Geo."—Your indicators in connection with the float, have been known to us for more than 20 years. Almost all the foreign boilers for stationary engines are made with them.

"Oregono."—A. R. Carter of Newark, N. J., can give you all the information desired about machines for turning irregular forms. We do not know the prices.

"H. & A., of O."—Your engraving is in progress and will be forwarded to you in a few days. $10 dollars received.

"R. D. A. of San Francisco."—Messrs. Thomson & Hitchcock, agents for Gregory's Express, have your Camera in charge and will forward it by the first steamer. The case which contains the instrument measures 19 cubic inches, and the freight, at $20 per foot, amounts to 31,67. We could not pack it in a smaller box.

"G. S., of N. Y."—There have been many plans for the same purpose as your invention. If yours is different from all others, you can secure a patent. The first thing to be done is to make a model and employ an agent to do the business for you, as you cannot do it yourself. We can do it at a very reasonable price.

"O. P. S., of O."—As we have had nothing to do with your application it is not proper for us to trouble the Patent Office with enquiries concerning your business. Write to the Commissioner yourself, that is the best way for you.

"S. C. A., of N. Y."—Your plan for making locomotives ascend steep grades would not work at all, in our opinion. It is adhesion by weight, not attraction, that assists the case to ascend. A 4 inch campass is worth $15, a 5 inch, $20; 6 inch $25, without verniers.

"W. P., of N. Y."—If you are coming to the city in a few weeks, your business had better be delayed until you arrive here.

Money received on account of Patent Office business, since June 5th, 1850:—

P. McK., of Ga., $10; C. F. B., of R. I., $61; T. B., of N. Y., $30; J. K. H., of Ala., $50; T. H., of N. Y., $30; D. H. J., of Pa., $20; and I. Z. A. W. of Phila., $28.

Important Notice to us!

Whenever any of our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

ADVERTISEMENTS.

Terms of Advertizing.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them for any price.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

MUNN & CO.,
128 Fultonstreet, New York.

MECHANICS' FAIR AT BOSTON.—(To be held September, 1850.)—The New England Patent Agency, Haskins building, Boston, will receive patented machinery, or other articles, place the same in the above Fair, and take orders for them, or dispose of the Right, for a reasonable commission. They will also, if desired, exhibit them before or after the Fair, at their own spacious rooms. Storage free, and no expense charged except freight and cartage. Inventors should lose no time in forwarding their articles. DARIUS WELLINGTON, Agent
39 8 New England Patent Agency.

WOODWORTH'S PATENT PLANING Machine 1850 to '56.—Recent decisions having finally established all the claims of this patent, the subscriber is prepared to dispose of the right to use the machine in the unoccupied Counties and Towns in the State of New York and in Northern Pensylvania. These machinese as made by the subscriber atone operation reduce to a thickness, plane tongue, groove, head and rabbet all kinds of lumber in a better manner and four times as expeditiously and cheaply as such work can be done by hand or by any other machine. For exclusive or single rights, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 37 6eow*

TO IRON FOUNDERS AND MACHINISTS in the Northern and Eastern States.—The Subscriber, sole agent for the sale of rights to make and sell the celebrated Bogardus Horse Power, will contract with any one disposed to manufacture the best horse power in the world, upon reasonable terms. Address GEORGE VAIL, Morristown, N. J.
1am1y*

THE THIRD ANNUAL EXHIBITION of the Maryland Institute for the promotion of the Mechanic Arts, will be opened at Washington Hall, Baltimore, on Monday the 14th Oct., 1850. The Committee of Arrangements earnestly invite the mechanics and manufacturers throughout the States to exhibit speciments of their handiwork and become competitors for the prizes offered as premiums for superior merit, either in design or execution:—15 gold and 60 silver medals are offered to male and 40 to female contributors. Competent judges will be carefully selected, and increased facilities afforded to all those desiring to present articles for premium or exhibition. For further information, address the Chairman of Com. on Exhibition. Baltimore.
37 5 C. W. BENTLEY, Chairman.

TO STONE CUTTERS, QUARRY OWNERS, and others—The North American Stone Dressing Co., capital $168,000, are the owners of Wilson's Patent for Dressing Stone, and have established an agency in the city of New York. They are authorized to engage in quarrying stone to any extent and will entertain proposals either for purchase of the right to run machines under said invention, or for capital to aid in opening quarries on a large scale. Four machines are now in successful operation in N. Y. city, where they can be seen dressing stone of every degree of hardness, giving perfectly true surfaces and corners, and with a simplicity, efficiency and rapidity which will insure a highly profitable result to all who shall secure rights. Application can be made to
SHELTON, FLAGG & ANDREWS, Attorneys to the N. A. S. D. Co., 12 Wall st., N. Y. 36 4*

IMPROVED FILTERERS.—Fessenden's Patent Pocket Filtering Tube. This is one of the most complete articles ever offered to the public, and is especially adapted to the use of travellers, by sea or land; it being light and compact, and the water being filtered by the very act of drinking. This filter having been duly patented, all persons are hereby cautioned against purchasing or using filters intended or calculated to infringe upon the rights of the patentee.

Fessenden's Division Filter.—This is the most perfect and scientific pressure filter now in use; it is more durable, more easily and thoroughly cleansed, and purifies the water more completely than anything of the kind ever before invented. The above mentioned filters are for sale at the store of D. H. Butts & Co., 15 Canal st.; Horace H. Day, 23 Cortlandt street, and E. Bartlett, 31 Park Row, where purchasers are invited to examine them. Orders left with D. H. Butts & Co. promptly attended to. 36 4*

NEW STYLE AND IMPROVED SLIDE LATHE.—SCRANTON & PARSHLY, New Haven, Conn., will sell the best slide Lathe for $150 to $200 less than ever before sold. They are built in the most substantial manner—the heads geared and arbors large and of the best cast steel; the slide rest is held to the bed by guides, fed by a screw 2 in. diameter, and feeds from 80 to the in. to 5 1-2 in. pitch, working several hundred different pitch threads within these extremes. Besides the regular lathe feed it has the facing up feed. It is admirably adapted for holding and boring boxes, cylinders and turning and cutting screws. One extra large size face plate, centre rest and reversing pullies go with each lathe. The 12 ft. lathe weighs 4000 lbs. turning 8 ft. 5 in., price $450. The 15 ft. 7 in lathes 4500 lbs., turning 12 feet, $500, swings 26 in. For further particulars address as above, (p. p.) Other lathes for sale as heretofore. 34tf

MACHINE BANDS, RUBBER HOSE, &c.—After 20 years devoted to the manufacture of India Rubber, the undersigned feels confident of his thorough practical knowledge of the quality of goods in his line. The three factories now owned and operated by him, turn out large quantities of all kinds and styles of rubber goods in use, mostly vulcanized rubber. Orders for railroads, factories and merchants executed with intelligent regard to wants and best interest of the customer. Warehouse 23 Courtland st., N. Y.; 1 factory at Great Barrington, Mass., with whole flow of Housatonic river for power; 1 at New Brunswick, N. J., by steam power; 1 at Piscataway, N. J., waterpower. These 3 factories embrace machinery and apparatus costing over $50,000—enabling the owner to execute orders with more promptness than any other establishment in the United States.
33 10* HORACE H. DAY.

ALCOTT'S CONCENTRIC LATHES.—We have on hand a few of these celebrated Lathes, which the inventor informs us will execute superior work at the following rates:—

Windsor Chair Legs and Pillars, 1000 per 11 hours. Rods and Rounds, 2000; Hoe Handles, 800; Fork Handles, 500; Broom Handles, 150 per 11 hours.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid). MUNN & CO.,
14tf At this Office.

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
363m Painters and Chemists

WOOD'S PATENT SHINGLE MACHINES.—These excellent machines, illustrated and described in No. 23, Vol. 5, Scientific American, are offered for sale in Town, County and State Rights, or by single machines. There are three sizes, the first cuts an 18 inch shingle, price, $100; 2nd cuts 24 inch, price $110; 3rd, 28 inch, $120. Orders addressed to J. D. Johnson, Easton, Conn., or to Munn & Co., "Sci. Am." Office, will meet prompt attention. 36 tf

WOODWORTH'S PLANING MACHINE—For sale. the right to use this justly celebrated labor-saving machine in the following States, viz. Pennsylvania and Virginia west of the Allegheny Mountains, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Georgia, Alabama and Mississippi. For particulars apply to Elisha Bloomer, 304 Broadway, or to E. P. Norton, Esq., Cincinnati, Ohio. 34 5*

IMPORTANT INVENTION.—GURLEY'S beautiful and unique machine for gumming saws, noticed in No. 50, Vol. 4, Scientific American, is now offered to the public as a most important desideratum for saw manufacturers and all who use saws, as they can gum the teeth with very little trouble.—Orders addressed to G. A. KIRTLAND, No. 205 South street, (p. p.), will meet prompt attention. 36 tf

THE AMERICAN UNION.—The most carefully written and best arranged Paper in the United States. This Popular Paper is supplied with Selected Stories Humorous Sketches, Tales of Travel; Romances, Sketches of Real Life, Biographies, Poetry Serious Sentimential, and Humorous; Gems from New Works, Local Matters, Reviews Agricultural Treasuries, Scientific Novelties, Anecdotes, Glimpses of the Law, Opinions, Correspondence, Foreign and Domestic News, Congressional and Legislative Intelligence, Accidents and Casualties, Financial Articles, Markets, Miscellaneous Editorial Articles, amusing sketches, facts and fancies, such as never before has been in one publication. As a General Family Paper it is unsurpassed for the variety and completeness of its contents, and for the great care that is taken, while it shall amuse, to instruct and elevate the mind to a sense of its natural dignity. For the old, it will be found stored with experience—for the young, it will possess a charm that will not contaminate or cloy the taste. Published weekly by R. B. FITTS & CO., 22 School Street, Boston, Mass. Terms—Two Dollars per aunum, payable in advance. 328*

SAW MILL MACHINERY.—The subscriber would respectfully inform his friends, and the public generally, that he still continues to manufacture, and keeps constantly on hand all kinds of saw mill machinery, consisting of log saw mill fitted up in the best manner and most approved mechanical mode, patent improved slitting and panel saw mills, (patented by himself and proved superior to any other in use) also for veneering, scroll and circular saws. Shafting and other machinery fitted to order. Persons in want of such machinery will promote their interests by an interview with the undersigned, before engaging elsewhere, articles embraced above, as his long experience both in the manufacture and use thereof, has given him a thorough practical acquaintance with the best models of constructing.
THOMAS J. WELLS,
38 4* Foot of 29th St., N. R., New York.

STIVEN'S PATENT EPICYLOIDAL Rotary Pump, for forcing and lifting, will be found superior to any other now in use, being capable of forcing water from 20 to 30 feet farther with the same capacity of water and same amount of power applied. As all great fires originate from small fires, no dwelling house, factory, or ship should be without one.—This pump is applicable to every purpose a pump can be used for. An inspection is only necessary to satisfy any person of its great utility. Removed to 58 and 60 Vesey st., N. Y. 373*

COTTON, WOOLEN AND SILK MANUFACTURERS' DEPOT.—ANDREWS & JESUP. No. 70 Pine st., N. Y., dealers in articles for the use of Cotton, Woolen and silk manufacturers, and agents for the sale of shearing, carding, burring, napping, wool-picking, flock-cutting and waste machines, regulators, satinet and jean warps, &c. Weavers' reeds and heddles, bobbins and spools, of every description, made to order. Sperm, lard and olive oils and oil soap. 34tf

MATTEAWAN MACHINE WORKS.—Locomotive Engines, of every size and pattern. Also tenders, wheels, axles, and other railroad machinery. Stationary engines, boilers, &c. Arranged for driving cotton,, woolen and other mill. Cotton and woolen machinery of every description, embodying all the modern improvements. Mill geering, from probably the most extensive assortment of patterns in this line, in any section of the country. Tools, turning lathes, slabbing, plaining, cutting and drilling machines. Together with all other tools required in machine shops. Apply at the Matteawan Co. Work, Fishkill Landing, N. Y., or at No. 66 Beaver st. New York City, to
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MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 33tf

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JOSEPH P. PIRSSON, Civil Engineer,
33tf Office 5 Wall street, New York.

JONATHAN TAYLOR, Machinist, Montgomery, Alabama, begs leave to inform inventors and the public in general, that he is prepared to make patterns and models to order. He is also desirous of being appointed agent for the disposal of all kinds of patent machinery. Office on Commerce street, two doors from the Exchange Hotel. All letters must be post-paid. 32 10*

SASH AND BLIND MACHINE—Patented by Jesse Leavens, of Springfield, Mass., is the best Sash and Blind Machine now in use. The Machine cost $300 at the shop where they are made, near Springfield—extra charge for the right of using. The machine does all to a Window Sash and Blind except putting them together. Orders from abroad will be promptly attended to, by addressing JESSE LEAVENS, Palmer Depot, Mass. 22 20t*

IRON FOUNDERS FACING DUST.—An approved article of Sea Coal Dust to mix with mouldingsand; also superior Charcoal Foundry Blacking, Lehigh Blacking, Soapstone and Black Lead Dust, Fire Clay, &c.,—for sale by G. O. ROBERTSON,—City office 4 Liberty Place, (formerly Little Green street), near the Post Office, N. Y. 37 4eow*

TO SOUTHERN MANUFACTURERS and Sugar Planters.—The advertiser a practical machinist and engineer, at present employed as chief engineer of one of the largest manufacturing companies in New England, is desirous of locating South. Address M., Engineer, Lowell Mass. 35 6*

TO THE THINKERS OF NEW YORK. KNOX is desirous that every rational man in want of a hat, should, for a moment, think before deciding where they shall supply that want. KNOX thinks that 128 Fulton st, is just the spot. 38 8*

ONE HORSE STEAM ENGINE.—Attached to Bentley's Patent Boiler, with pump, &c., all complete, for sale; it is set up without brickwork and occupies only three feet of floor room,—price $200. Apply, post-paid, to S. C. HILLS, machinery agent, 12 Platt st. 384*

CHAIN PUMPS.—A superior article of galvanized chain, with fusible metal elevators, and all the parts complete, or any part thereof, sold wholesale and retail at the lowest cash prices, by AARON WILBORN, No. 4 Harvard st., New Haven, Ct. 382*

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Scientific Museum.

Useful Statistics.

In 1820, the number of books in all the public libraries of Germany amounted to 4,000,000, without reckoning memoirs, pamphlets, manuscripts, etc.

Many animals, which under ordinary circumstances are perfectly innoxious, become armed with a salivous poison when infuriated. Man himself becomes somewhat poisonous when highly excited by anger.

The light of the full moon is to that of our day only as 1 to 90,000.

If the smallest quantity of air be admitted into a vacuum, in which a delicate air thermometer is enclosed, the diminution of the space occasions an elevation of temperature, and the enlargement occasions cold.

In England, the only natural temperature that is agreeable lies between 60 and 70°; in this climate (lat. 35° 40′ N., long. 79° 3′ W.) between 70 and 80°.

Thirty years, ago, a new method of taking the lives of animals destined for the market, which greatly diminished their sufferings, was extensively employed in London. It was effected by nitrogen. The meat was said to retain its freshness better, have a more agreeable taste, and more easily preserved. Why was it laid aside?

It is calculated that a person has 1600 opportunities of leaving London in the course of 24 hours by stage coaches.

At one time, the number of letters daily distributed by the post-office at Paris was about 32,000, and of journals 1,800; whilst in London, in the same year, the amount of letters was 163,000, and of journals 26,000.

Thenard succeeded in causing pure water to absorb oxygen to the enormous extent of 650 times its volume. Its taste was rendered slightly astringent and bitter.

Sugar taken in lumps is an antidote for verdigris; vinegar counteracts the dangerous effects of alkaline substances and narcotics; and white of eggs those of corrosive sublimate.

Sanctoris invented the thermometer in 1590; re-invented by Corn. Drebbel, 1620; improved by Reaumer, 1730, but reduced to a correct standard by Fahrenheit in 1724.

Steel was known to the Greeks, in the time of Homer—about 1000 B. C.

The first newspaper printed in Boston was "The News Letter," April 24, 1704; in Philadelphia, "The American Weekly Mercury," Dec. 22, 1719; in New York, "The New York Gazette," Oct. 16, 1725; in Rhode Island, "The Rhode Island Gazette," Oct., 1732; in New Haven, Conn., "The Connecticut Gazette," 1755; in New Hampshire, 1756; in Providence, 1762; in Kentucky, 1787; in Tennessee, 1790.

Knowledge is the true alchemy that turns every thing it touches into gold. It gives us dominion over nature, unlocks the store-houses of creation, and opens to us the treasures of the universe.

To make us happy we require not much less than every thing; to make us miserable, not much more than nothing will suffice.

According to Herschel, the equatorial diameter of the earth is 7,925·648 miles; the polar, 7,899·170.

Water at the depth of 362 miles from the surface would be as heavy as mercury; and air as heavy as water at 34 miles; while at the centre the density of marble would be increased 119 times.

The fact that the temperature gradually increases towards the centre of the earth, attracted the attention of philosophers more than a century ago; in 1807 D'Aubuisson revived the investigation. The greatest depths at which experiments have been conducted, are 1713 feet in Mexico, 1584 in England and 1300 in Germany.

If the density of air at the surface of the earth be represented by one, at 7 miles above the earth it will be 1-4th, at 14 miles 1-16th, at 21 miles 1-64th' and so on; 100 cubic inches of air at the temperature of 60° weigh 30½ grains.

The proportion of land to sea is, accurately, as 266 to 734. The dry land, therefore, occupies 52,353,231 square miles, and the ocean an area of 144,463,427.

During the last thousand years the deltoid deposits of the Rhone has gained upon the Mediterranean from 4 to 6 miles. Notre Dame des Ports was a harbor in 898, but is now a league from the shore; Psalmodi was an island in 815, and is now two leagues from the sea; and the Tower of Tignaux, erected on the shore in 1737, is already a Frenchmile from it.

The greatest heights with which we are acquainted are those of the Himmaleh range in Asia, the Dhawalagiri Peak being 28,077 feet, and the Jewahir 25,747. Of the Andes, the Nevado di Sorato is 25,250 feet, and Illimani 24,450. The Alps rise to 15,668 feet, the Pyrenees to 11,283; Geesh (in Abyssinia) is 15,000, and Teneriffe gives 12,180.

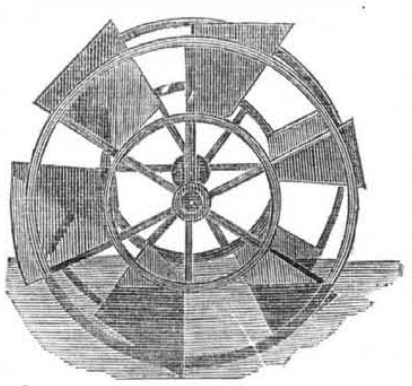
The animals peculiar to a country constitute its "Fauna" and the plants its "Flora." As naturalists speak of the existing Fauna and Flora of any country, so geologists speak of the fossil Fauna and fossil Flora of certain geological epochs and formations.

In Europe there are three centres of volcanic action—that of the Levant (as Ætna), of Iceland (Hecla), and of the azores. J. W. O.

History of Propellers and Steam Navigation.

[Continued from page 296.]

Fig. 60.

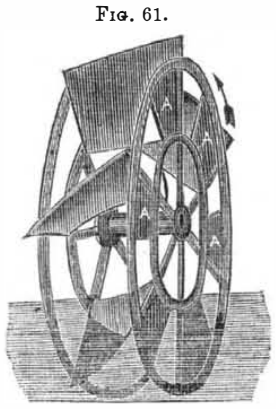


It has often been attempted to place the floats of paddle wheels oblique in order to allow the blades to enter the water with an increasing surface upon the principle of the wedge, to reduce the tremulous motion of the vessel caused by the direct action of the common blades upon the water. Among the many plans for this purpose, we present one patented by a Mr. Biram, an English engineer.

In figure 60 we have a side view and fig. 61 is a perspective view.

In this the floats A are supposed to be made of iron-plate, and consists of two parts; one part is a flat plate rivetted to the ring and arm, and this is met by a second plate slightly curved and set obliqely to the axis of the paddle. By this arrangement the float enters the water gradually, and communicates to it an angular motion at right angles to its own plane. The water as it recedes from the oblique float is thrown upon the parellel side-plate, and being thus confined, it is supposed to give the same amount of reaction as would be produced by action of the common float.

Fig. 61.



It will be observed that the action of the floats upon the water is angular, as is fully shown. It often happens that to get rid of one evil, a second evil is generated—the latter being greater than the one intended to be removed. This was the case with Robertson Buchanan's feathering paddle wheel. To make the buckets enter and leave the water vertically, so much friction was caused by the means he employed that the attempt to supersede the common paddle, resulted in a complete failure.

This paddle wheel of Biram, although it has the floats entering the water gradually, yet the small interval allowed for the water to recede before full immersion of the float, affords no great remedy that way, and on the other hand, the water must re-act from one oblique surface upon the succeeding one, thereby givingit two motions.

Accoustics.

The intensity of sound, like that of attraction, diminishes in the inverse ratio of the squares of the distances of the sounding body, when opposing currents of air or other obstacles do not interfere.

According to experiments made by the French Academicians, the velocity of sound at a temperature of 55° Fahr. is ascertained to be 1,044 feet per second; but it has been variously given by different philosophers. According to Flamstead and Halley, it is 1,142; according to recent experiments in Holland, its mean velocity is 1,120 feet per second.

A whisper, so far as it goes, travels as fast as the report of a cannon; it also describes equal spaces in equal times. The strength of sound is greatest in cold and dense air, and least in that which is warm and rarefied. During Captain Parry's first voyage, in lat 74° 40′ N., people might be heard conversing distinctly, in a common tone of voice, at a distance of one mile.

Sound travels through different media with various velocities. Through air, at 1,130 feet per second; water, 4,900; cast iron, 11,090; steel, 17,000; glass, 18,000; wood, 4,636 to 17,000.

Two sets of sonorous vibrations of equal intensity, and encountering each other in opposite phases of vibrations, will interfere and become mutually checked; and thus silence be produced by the conflict of two sounds. Sonorous vibrations, on impinging on a plain surface, are reflected from it in such a manner that the angles of incidence and reflection are equal.

A perfect echo ensues after the lapse of 0·1 second.

Sound is reflected by curved surfaces in the same manner as light and heat.

Method of computing Distances by Sound.—Assuming that sound passes through the air, uniformly, at the rate of 1.142 feet in a second, or through a mile in about 4 2-3 seconds, any distance may be readily found, in feet, by multiplying the time, in seconds, which the sound takes to arrive at the ear, by 1,142; or in miles by multiplying the same by 3-14.

Note.—The time taken for the passage of sound, in the interval between seeing a flash of lightning, or that of a gun, and hearing the report, may be observed by a watch or a second's pendulum; or it may be determined by the beats of the pulse, counting, on an average, about 70 to a minute, for persons in moderate health, or 5½ pulsations for a mile.

Example 1.—After observing a flash of lightning, it was 12 seconds before I heard the thunder: required the distance of the cloud from which it came:—12×3÷14=2,4-7 miles, Ans.

Light comes from the sun in about 8 minutes; hence light travels at the rate of 200,000 miles per second; or, according to Sir J. Herschel, at the rate of 192,500 miles in a second.

Mathematics of Bees.

The warmest admirers of honey and greatest friends to bees, will never, I presume, contend that the young swarm, who begin making honey three or four months after they are born, and immediately construct these mathematical cells, should have gained their mathematical knowledge as we gain ours, and in three months' time outstrip Mr. Maclaurin in mathematics as much as they did in making honey. It would take a senior wrangler at Cambridge ten hours a day, for three years together, to know enough mathematics for the calculation of these problems, with which not only every queen bee, but every undergraduate grub, is acquainted the moment it is born.—[Sidney Smith.

Petrification.

About sixty miles above Georgetown, Williamson County, La., there is a valley of petrifications probably unequalled on the globe. Not only prostrate trees are petrified into the finest flint, but leaves of trees, flowers of plants, and often the whole plant bearing fruit is petrified. A large tarantala was found as natural as life, sitting on a rock, completely and in every part turned to stone. An enormous Indian arrow head has also been found. The petrifications and the floral beauties there hardened into rock, would astonish and delight the naturalist.

Divisibility of Matter.

A remarkable instance of the divisibility of matter is seen in the dyeing of silk in cochineal, where a pound of silk, containing eight score threads to the ounce, each thread 72 yards long, and the whole reaching 104 miles, when dyed scarlet, does not receive above a drachm additional weight; so that a drachm of the coloring matter of the cochineal is actually extended through more than 100 miles in length; and yet this minute quality is sufficient to give an intense color to the silk with which it is combined.

It is estimated that by December next four thousand miles of plank road will be in use in Ohio.

LITERARY NOTICES.

Griffith's Naval Architecture.—Number 6 of this superb work is just issued. It has three excellent plates, and some of the most appropriate and judicious remarks on proportion, that we have ever perused. On our editorial page, there is a notice of a splendid present presented to Mr. Griffith by the Emperor Nicholas. To those who have taken this work, we would say, that the model sent to the Emperor, is described in No. 3.

The Phrenological Journal.—This able monthly magazine for June, published by Fowlers & Wells, contains a biography and likeness of John Quincy Adams, and a number of other excellent articles.

"Three Strong Men," a new 25 cent novel by Alexander Dumas, just published by Dewitt & Davenport, Tribune building.

Shakspeare's Dramatic Works, No. 17, published by Phillips, Sampson & Co., Boston, contain the popular play entitled "King John." This work, when complete, will outvie in beauty any similar edition of Shakspeare ever issued. Price 25 cents per number; for sale by Dewitt & Davenport.

"The Miner's Daughter, a Tale of the Peak," by Charles Dickens, has just been issued by Dewitt & Davenport, price 6 1-4 cents. It covers 30 pages, and is after the style of its renowned author, piquant and truthful in deliniation.

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